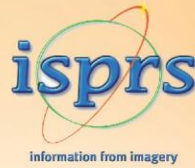




**ISPRS
GEOSPATIAL
WEEK 2023**



Arab Academy
for Science, Technology
& Maritime Transport

**The ISPRS 2023 Geospatial Week
(Egypt GSW'2023)**

Remote Sensing For Better Future

September 1st, 2023



Cairo, Egypt, September 2-7, 2023
www.gsw2023.com

Date: Saturday, 02/Sept/2023

8:30am - 10:00am	T1-1: Sensor Fusion for Mapping and Navigation Location: Pavilion-Hall5 Session Chair: Dr. Mohamed Mostafa , Trimble, Canada
8:30am - 10:00am	T2-1: Deep Learning in Remote Sensing: Algorithms and Applications Location: Pavilion-Hall1 Session Chair: Prof. Henry Leung , University of Calgary, Canada
10:00am - 10:30am	CB: Coffe Break
10:30am - 12:00pm	T1-2: Sensor Fusion for Mapping and Navigation Location: Pavilion-Hall5 Session Chair: Dr. Mohamed Mostafa , Trimble, Canada
10:30am - 12:00pm	T2-2: Deep Learning in Remote Sensing: Algorithms and Applications Location: Pavilion-Hall1 Session Chair: Prof. Henry Leung , University of Calgary, Canada
1:30pm - 3:00pm	T3-1: UAV-based 3D mapping using imaging and LiDAR systems: challenges, data processing, and applications Location: Pavilion-Hall1 Session Chair: Prof. Ayman Habib , Purdue University, United States of America
1:30pm - 3:00pm	T4-1: Public Health Data Handling, Analysis and Visualisation using Spatial Science Location: Pavilion-Hall5 Session Chair: Dr. Sameer Saran , Indian Space Research Organisation Dept. of Space, India
3:00pm - 3:30pm	Coffee Break
3:30pm - 5:00pm	GSIS EB Meeting: GSIS EB Meeting Location: Pavilion-Hall2 Session Chair: Prof. Deren Li , Wuhan University, China, People's Republic of
3:30pm - 5:00pm	T3-2: UAV-based 3D mapping using imaging and LiDAR systems: challenges, data processing, and applications Location: Pavilion-Hall1 Session Chair: Prof. Ayman Habib , Purdue University, United States of America
3:30pm - 5:00pm	T4-2: Public Health Data Handling, Analysis and Visualisation using Spatial Science Location: Pavilion-Hall5 Session Chair: Dr. Sameer Saran , Indian Space Research Organisation Dept. of Space, India
6:00pm - 9:30pm	OC: Opening Ceremony and Reception Location: Cleopatra Session Chair: Prof. Naser El-Sheimy , University of Calgary, Canada

Date: Sunday, 03/Sept/2023

8:30am - 10:00am	PS - 1: Plenary Session - 1 Location: Cleopatra Session Chair: Prof. Naser El-Sheimy , University of Calgary, Canada Session Chair: Prof. Alaa Abdelbary , Arab Academy for Science, Technology and Maritime Transport, Egypt
10:00am - 10:30am	Coffee Break
10:30am - 12:00pm	PS - 2: Plenary Session - 2 Location: Cleopatra Session Chair: Prof. Naser El-Sheimy , University of Calgary, Canada Session Chair: Prof. Alaa Abdelbary , Arab Academy for Science, Technology and Maritime Transport, Egypt
12:00pm - 1:15pm	Lunch
1:30pm - 3:00pm	00-Satellite Remote Sensing 00: Machine Learning Applications in Environmental Monitoring and Disaster Management(1) Location: White Nile Session Chair: Prof. Shabnam Jabari , University of New Brunswick, Canada
1:30pm - 3:00pm	

Pavilion-Hall2	1-Cultural Heritage: Cultural Heritage Visualization and Virtual Restoration 1 Location: Pavilion-Hall2 Session Chair: Prof. Miaole Hou , Beijing University of Civil Engineering and Architecture, China, People's Republic of Session Chair: Prof. Sisi Zlatanova , UNSW, Faculty of Built Environment, GRID, Australia
1:30pm - 3:00pm	1-Indoor 3D 1: Indoor 3D 1 Location: Babylon Session Chair: Prof. Zhizhong Kang , China University of Geosciences (Beijing), China, People's Republic of
Babylon	
1:30pm - 3:00pm	1-Mobile Mapping Technologies 1: Mobile Mapping Technologies and HD Maps 1 Location: Pavilion-Hall5 Session Chair: Dr. Kai-Wei Chiang , National Cheng Kung University, Taiwan
Pavilion-Hall5	
1:30pm - 3:00pm	1-Precision GNSS 1: Precision GNSS 1 Location: Pavilion-Hall6 Session Chair: Dr. Joao Francisco Galera Monico , Universidade Estadual Paulista - Unesp, Brazil
Pavilion-Hall6	
1:30pm - 3:00pm	1-Robotics for Mapping 1: Robotics for Mapping 1 Location: Nefertiti Session Chair: Prof. Ville Lehtola , University of Twente, Netherlands, The
Nefertiti	
1:30pm - 3:00pm	1-SARcon 2023 1: SARcon 2023 1 Location: Morgana Session Chair: Dr. Michele Crosetto , cttc, Spain
Morgana	
1:30pm - 3:00pm	1-Underwater Mapping 1: Underwater Mapping1 Location: Pavilion-Hall3 Session Chair: Prof. Dimitrios Skarlatos , Cyprus University of Technology, Cyprus Session Chair: Prof. Gottfried Mandlbürger , TU Wien, Austria
Pavilion-Hall3	
1:30pm - 3:00pm	3DS - 1: 3D Sensing for Smart Cities 1 Location: Blue Nile Session Chair: Prof. Chenglu Wen , Xiamen University, China, People's Republic of
Blue Nile	
1:30pm - 3:00pm	ISPRS CM-1: ISPRS Council Meeting Location: Pavilion-Hall1
Pavilion-Hall1	
3:00pm - 3:30pm	Coffee Break
3:30pm - 5:00pm	1-Satellite Remote Sensing 1: Remote Sensing Applications in Agricultural Monitoring and Crop Analysis (2) Location: Blue Nile Session Chair: Prof. ORHAN ALTAN , ITU-ISPRS, Turkiye Session Chair: Prof. Yahya Zakaria Mohasseb , Arab Academy for Science, Technology & Maritime Transport, Egypt
Blue Nile	
3:30pm - 5:00pm	2-Cultural Heritage: Cultural Heritage Visualization and Virtual Restoration 2 Location: Pavilion-Hall3 Session Chair: Prof. Miaole Hou , Beijing University of Civil Engineering and Architecture, China, People's Republic of Session Chair: Prof. Sisi Zlatanova , UNSW, Faculty of Built Environment, GRID, Australia
Pavilion-Hall3	
3:30pm - 5:00pm	2-Indoor 3D 2: Indoor 3D 2 Location: Babylon Session Chair: Dr. Lucía Díaz-Vilarinho , Universidade de Vigo (Q8650002B), Spain Session Chair: Prof. Youness Dehbi , Hafencity University Hamburg, Germany
Babylon	
3:30pm - 5:00pm	2-Mobile Mapping Technologies 2: Mobile Mapping Technologies and HD Maps 2 Location: Pavilion-Hall5 Session Chair: Dr. Mengchi Ai , University of Calgary, Canada Session Chair: Dr. Charles Toth , The Ohio State University, United States of America
Pavilion-Hall5	
3:30pm - 5:00pm	2-Precision GNSS 2: Precision GNSS 2 Location: Pavilion-Hall6 Session Chair: Xiaohong Zhang , Wuhan University, China, People's Republic of Session Chair: Yan Xiang , Shanghai Jiaotong University, China, People's Republic of
Pavilion-Hall6	
3:30pm - 5:00pm	2-Robotics for Mapping 2: Robotics for Mapping 2 Location: Nefertiti Session Chair: Prof. Andrea Masiero , University of Florence, Italy
Nefertiti	
3:30pm - 5:00pm	2-SARcon 2023 2: SARcon 2023 2 Location: Morgana Session Chair: Prof. Junichi Susaki , Kyoto University, Japan
Morgana	
3:30pm - 5:00pm	2-Satellite Remote Sensing 2: Deep Learning for Remote Sensing Image Analysis and Land Cover Classification(2)
White Nile	

	Location: White Nile Session Chair: Prof. Ahmed Shaker , Toronto Metropolitan University, Canada Session Chair: Prof. Amr Hanafi Ali , Faculty of Engineering at Shoubra - Benha University, Egypt
3:30pm - 5:00pm	3DS - 2: 3D Sensing for Smart Cities 2
Pavilion-Hall2	Location: Pavilion-Hall2 Session Chair: Dr. Yan Xia , Technical University of Munich, Germany
5:30pm - 9:30pm	Dinner and Show on Nile Crystal Cruising Restaurant – By Tickets only
Date: Monday, 04/Sept/2023	
8:30am - 10:00am	1-Crowdsourcing 1: Crowdsourcing for Global Mapping (Crowdsourcing Data Analysis and Mapping Techniques1
Morgana	Location: Morgana Session Chair: Prof. Hongchao Fan , Norwegian University of Science and Technology, Norway
8:30am - 10:00am	1-Digital Construction 1: Reality Capture & 3D printing 1
Pavilion-Hall2	Location: Pavilion-Hall2 Session Chair: Dr. Kourosh Khoshelham , University of Melbourne, Australia Session Chair: Dr. Jónatas Valença , CERIS, ULisboa, Portugal
8:30am - 10:00am	1-Geospatial Data Analytics 1: Geospatial data Analytics 1
Pavilion-Hall1	Location: Pavilion-Hall1 Session Chair: Prof. Muralikrishna Iyyanki Venkata , JNT University, India Session Chair: Prof. Maged N. Kamel Boulos , University of Lisbon, Portugal
8:30am - 10:00am	1-Openness in Geospatial 1: Openness in Geospatial and Remote Sensing 1
Nefertiti	Location: Nefertiti Session Chair: Dr. Bolelang Hilda Sibolla , Council for Scientific and Industrial Research, South Africa Session Chair: Albana KONA , European Commission, Italy
8:30am - 10:00am	1-Youth Presentation Forum: Youth Presentation Forum
Pavilion-Hall5	Location: Pavilion-Hall5 Session Chair: Dr. Mengchi Ai , University of Calgary, Canada Session Chair: Laxmi Thapa , ISPRS Student Consortium, United Kingdom
8:30am - 10:00am	3-Precision GNSS 3: Precision GNSS 3
Babylon	Location: Babylon Session Chair: Prof. Ahmed El-Mowafy , Curtin University, Australia Session Chair: Prof. Moustafa Baraka , German University in Cairo (GUC), Egypt
8:30am - 10:00am	3-Satellite Remote Sensing 3: Advancements in Remote Sensing for Climate and Environmental Monitoring (Session 1) 3
White Nile	Location: White Nile Session Chair: Prof. Ahmed Shaker , Toronto Metropolitan University, Canada Session Chair: Gouda Agag , Egyptian Survey Authority, Egypt
8:30am - 10:00am	3DS - 3: 3D Sensing for Smart Cities 3
Blue Nile	Location: Blue Nile Session Chair: Cheng Wang , Xiamen University, China, People's Republic of Session Chair: Prof. Andrea Masiero , University of Florence, Italy
8:30am - 5:00pm	ISPRS CM-2: ISPRS Council Meeting (Full Day)
Pavilion-Hall6	Location: Pavilion-Hall6
10:00am - 10:30am	Coffee Break
10:30am - 12:00pm	1-PhotoGA 2023 1: PhotoGA 2023 1
Pavilion-Hall5	Location: Pavilion-Hall5 Session Chair: Dr. Dimitri Bulatov , Fraunhofer IOSB Ettlingen, Germany Session Chair: Dr. Petra Helmholtz , Curtin University, Australia
10:30am - 12:00pm	2-Crowdsourcing 2: Crowdsourcing for Global Mapping (Crowdsourcing for Environmental Monitoring)2
Morgana	Location: Morgana Session Chair: Prof. Hongchao Fan , Norwegian University of Science and Technology, Norway
10:30am - 12:00pm	2-Digital Construction 2: Automated Inspection 2
Pavilion-Hall2	Location: Pavilion-Hall2 Session Chair: Dr. Kourosh Khoshelham , University of Melbourne, Australia Session Chair: Dr. Jónatas Valença , CERIS, ULisboa, Portugal
10:30am - 12:00pm	

Pavilion-Hall1	2-Geospatial Data Analytics 2: Airpollution, Health and Society 2 Location: Pavilion-Hall1 Session Chair: Prof. Muralikrishna Iyyanki Venkata , JNT University, India Session Chair: Prof. Maged N. Kamel Boulos , University of Lisbon, Portugal
10:30am - 12:00pm	2-Openness in Geospatial: Openness in Geospatial and Remote Sensing 2 Location: Nefertiti Session Chair: Dr. Bolelang Hilda Sibolla , Council for Scientific and Industrial Research, South Africa Session Chair: Albana KONA , European Commission, Italy
10:30am - 12:00pm	3DS - 4: 3D Sensing for Smart Cities 4 Location: Blue Nile Session Chair: Weiquan Liu , Xiamen University, China, People's Republic of
10:30am - 12:00pm	4-Precision GNSS 4: Precision GNSS 4 Location: Babylon Session Chair: Prof. Yang Gao , University of Calgary, Canada Session Chair: Prof. Moustafa Baraka , German University in Cairo (GUC), Egypt
10:30am - 12:00pm	4-Satellite Remote Sensing 4: Advancements in Remote Sensing for Climate and Environmental Monitoring (Session 2) 4 Location: White Nile Session Chair: Prof. Francesco Pirotti , University of Padova, Italy Session Chair: Prof. Ali Amasha , Arab Academy for Science, Technology & Maritime Transport, Egypt
10:30am - 12:00pm	Geospatial - Arabia: Geospatial - Arabia Location: Pavilion-Hall3 Session Chair: SATTAM ALOTAIBI , GEOSA, Saudi Arabia
12:00pm - 1:15pm	Lunch
1:30pm - 3:00pm	1-UAV-based mapping 1: Data Acquisition, Georeferencing, and Mapping (1) Location: Blue Nile Session Chair: Prof. Ayman Habib , Purdue University, United States of America
1:30pm - 3:00pm	3-Crowdsourcing 3: Crowdsourcing for Global Mapping (Crowdsourcing for Urban Spatial Analysis)3 Location: Morgana Session Chair: Prof. Hongchao Fan , Norwegian University of Science and Technology, Norway
1:30pm - 3:00pm	3-Digital Construction 3: BIM application 3 Location: Pavilion-Hall2 Session Chair: Dr. Kourosh Khoshelham , University of Melbourne, Australia
1:30pm - 3:00pm	3-Geospatial Data Analytics 3: Disaster management and Agriculture 3 Location: Pavilion-Hall1 Session Chair: Prof. Muralikrishna Iyyanki Venkata , JNT University, India Session Chair: Prof. Laurent Polidori , UFPA, Brazil
1:30pm - 3:00pm	3-Mobile Mapping Technologies 3: Mobile Mapping Technologies and HD Maps 3 Location: Pavilion-Hall5 Session Chair: Dr. Meng-Lun Tsai , National Cheng Kung University, Taiwan Session Chair: Prof. Chenglu Wen , Xiamen University, China, People's Republic of
1:30pm - 3:00pm	3-SARcon 2023 3: SARcon 2023 3 Location: Nefertiti Session Chair: Prof. Junichi Susaki , Kyoto University, Japan
1:30pm - 3:00pm	5-Precision GNSS 5: Precision GNSS 5 Location: Babylon Session Chair: Dr. Jinling Wang , University of New South Wales, Australia
1:30pm - 3:00pm	5-Satellite Remote Sensing 5: Satellite Remote Sensing for Natural Disaster Monitoring and Risk Assessment 5 Location: White Nile Session Chair: Prof. Shabnam Jabari , University of New Brunswick, Canada
1:30pm - 3:00pm	ADP - 1: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 1 Location: Pavilion-Hall3 Session Chair: Prof. Martin Breunig , Karlsruhe Institute of Technology, Germany
3:00pm - 3:30pm	Coffee Break

3:30pm - 5:00pm	2-ISSDQ2023 2: ISSDQ2023 2 Location: Pavilion-Hall2 Session Chair: Dr. Nicholas HAMM , University of Nottingham, China, People's Republic of
3:30pm - 5:00pm	2-UAV-based mapping 2: Data Acquisition, Georeferencing, and Mapping (2) Location: Blue Nile Session Chair: Dr. Mohamed Mostafa , Trimble, Canada
3:30pm - 5:00pm	4-Geospatial Data Analytics 4: Water and Environmental Management 4 Location: Pavilion-Hall1 Session Chair: Prof. Laurent Polidori , UFPA, Brazil Session Chair: Prof. Seema Jalan , Mohanlal Sukhadia University, Udaipur, Rajasthan, India
3:30pm - 5:00pm	4-Mobile Mapping Technologies 4: Mobile Mapping Technologies and HD Maps 4 Location: Pavilion-Hall5 Session Chair: Prof. Andrea Masiero , University of Florence, Italy Session Chair: Cheng Wang , Xiamen University, China, People's Republic of
3:30pm - 5:00pm	6-Satellite Remote Sensing 6: Remote Sensing for Vegetation and Forest Monitoring 6 Location: White Nile Session Chair: Prof. Nagwa El-Ashmawy , National Water Research Center, Egypt Session Chair: Prof. Marco Scaioni , Politecnico di Milano, Italy
3:30pm - 5:00pm	7-Satellite Remote Sensing 7: High-resolution Satellite Image Processing 7 Location: Morgana Session Chair: Dr. Salem Morsy , Fisheries and Marine Institute, Memorial University of Newfoundland, Canada
3:30pm - 5:00pm	ADP - 2: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 2 Location: Pavilion-Hall3 Session Chair: Dr. Paul Vincent Kuper , Karlsruhe Institute of Technology, Germany

Date: Tuesday, 05/Sept/2023

8:00am - 5:00pm	ISPRS CM-3: ISPRS Council Meeting (Full Day) Location: Nefertiti
8:30am - 10:00am	1-ISSDQ2023 1: ISSDQ2023 1 Location: Pavilion-Hall2 Session Chair: Prof. Mahmoud Reza Delavar , University of Tehran, Iran, Islamic Republic of
8:30am - 10:00am	1-Navigation, Guidance 1: Navigation, Guidance and Control of Autonomous Vehicles 1 Location: Pavilion-Hall5 Session Chair: Prof. Abouelmagd Nouredin , Queen's University, Canada
8:30am - 10:00am	1-Smart Forests 1: Deep Learning for large-scale forest monitoring 1 Location: Babylon Session Chair: Prof. Xinlian Liang , Wuhan University, China, People's Republic of
8:30am - 10:00am	3-UAV-based mapping 3: Data Acquisition, Georeferencing, and Mapping (3) Location: Blue Nile Session Chair: Prof. Ayman Habib , Purdue University, United States of America
8:30am - 10:00am	4-SARcon 2023 4: SARcon 2023 4 Location: Morgana Session Chair: Dr. Tamer ElGharbawi , Suez Canal University, Egypt
8:30am - 10:00am	5-Geospatial Data Analytics 5: Land and Environmental Management 5 Location: Pavilion-Hall1 Session Chair: Prof. Muralikrishna Iyyanki Venkata , JNT University, India Session Chair: Prof. Laurent Polidori , UFPA, Brazil
8:30am - 10:00am	8-Satellite Remote Sensing 8: Hyperspectral Image Processing and Uncertainty Modeling 8 Location: White Nile Session Chair: Dr. Bahram Salehi , SUNY ESF, United States of America
8:30am - 10:00am	ADP - 3: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 3 Location: Pavilion-Hall3 Session Chair: Prof. Árpád Barsi , Budapest University of Technology and Economics, Hungary
8:30am - 10:00am	ISPRS White Elephant Seminar: ISPRS White Elephant Seminar Location: Pavilion-Hall6

	Session Chair: Prof. armin gruen , ETH Zürich, Switzerland Session Chair: Prof. Kohei Cho , Tokai University, Japan
10:00am - 10:30am	Coffee Break
10:30am - 12:00pm	PS - 3: Plenary Session - 3 Location: Cleopatra Session Chair: Prof. Naser El-Sheimy , University of Calgary, Canada Session Chair: Prof. Nashwa Elbendary , Arab Academy for Science, Technology and Maritime Transport (AASTMT), Egypt
12:00pm - 1:15pm	Lunch
1:30pm - 3:00pm	PS - 4: Plenary Session - 4 Location: Cleopatra Session Chair: Prof. Mohamed Elhabiby , Micro Engineering Tech Inc. (METI), - Panellists: • Eng. Hisham Eldeeb, Managing director projects EPROM, Egypt. • Eng. Shahinda Shokry, Head of Digital Transformation/VDC Implementation at Orascom Construction, Egypt. • Dr. Mohamed Mostafa, Lead Technical Authority - Mobile Mapping, Trimble Applanix • Eng. Eman Abdelhamid, Digital Transformation Operation Manager at Micro Engineering Egypt, Micro Engineering Tech Inc. subsidiary, Canada. • Prof. Dr. Kai-Wei Chiang, Professor (Dept. of Geomatics, National Cheng Kung University) Director (High Definition Maps Research Center), Taiwan • Dr. Mohamed Mostafa, Lead Technical Authority - Mobile Mapping, Trimble Applanix
3:00pm - 3:30pm	Coffee Break
3:30pm - 5:00pm	ISPRS Geo-Information EB: ISPRS International Journal of Geo-Information -Editorial board meeting Location: Pavilion-Hall6 Session Chair: Prof. Wolfgang Kainz , University of Vienna, Austria
3:30pm - 5:00pm	ISPRS PHOTO: ISPRS PHOTO journal Editorial Board Meeting Location: Pavilion-Hall5 Session Chair: Dr. Kostas Bischiniotis , Elsevier, Netherlands, The
3:30pm - 5:00pm	Poster Session - 1: Poster Session - 1 Location: Poster Hall
5:30pm - 10:00pm	Dinner and Show at The Citadel of Cairo - – By Tickets only
Date: Wednesday, 06/Sept/2023	
8:30am - 10:00am	1 IAMS-1: Real-time infrastructure monitoring with drones 1 Location: Pavilion-Hall3 Session Chair: Prof. Eija Honkavaara , Finnish Geospatial Research Institute in National Land Survey of Finland, Finland
8:30am - 10:00am	1-GeoHB 2023 1: GeoHB 2023 1 Location: Morgana Session Chair: Prof. Wei Huang , Tongji University, China, People's Republic of Session Chair: Dr. Yingwei Yan , National University of Singapore, Singapore
8:30am - 10:00am	1-Laser Scanning 2023 1: Forestry Location: Pavilion-Hall1 Session Chair: Dr. Jan Boehm , University College London, United Kingdom
8:30am - 10:00am	1-Semantic 3D 1: Matching and 3D reconstruction Location: Pavilion-Hall2 Session Chair: Prof. Norbert Haala , Stuttgart University, Germany
8:30am - 10:00am	10-Satellite Remote Sensing 10: Imaging Technologies and Quality Assessment in Remote Sensing 10 Location: White Nile Session Chair: Prof. Ahmed Shaker , Toronto Metropolitan University, Canada
8:30am - 10:00am	3-Navigation, Guidance 3: Navigation, Guidance and Control of Autonomous Vehicles 3 Location: Pavilion-Hall5 Session Chair: Dr. Haidy Elghamrawy , Royal Military College of Canada, Canada
8:30am - 10:00am	

Babylon	3-Smart Forests 3: Forest and agriculture monitoring and assessments 3 Location: Babylon Session Chair: Dr. Yunsheng Wang , FGI, Finland
8:30am - 10:00am	4-UAV-based mapping 4: UAV Application in Agriculture and Forestry (1) Location: Blue Nile Session Chair: Dr. Mohamed Mostafa , Trimble, Canada
Blue Nile	
8:30am - 5:00pm	ISPRS CM-4: ISPRS Council Meeting (Full Day) Location: Nefertiti
Nefertiti	
10:00am - 10:30am	Coffee Break
10:30am - 12:00pm	11-Satellite Remote Sensing 11: SAR (Synthetic Aperture Radar) and InSAR Techniques for Environmental Monitoring and Disaster Assessment 11 Location: White Nile Session Chair: Prof. Francesco Pirotti , University of Padova, Italy
White Nile	
10:30am - 12:00pm	2-GeoHB 2023 2: GeoHB 2023 2 Location: Morgana Session Chair: Prof. Bi Yu Chen , Wuhan University, China, People's Republic of Session Chair: Prof. Wei Huang , Tongji University, China, People's Republic of
Morgana	
10:30am - 12:00pm	2-IAMS 2: Autonomous drones and 3D mapping in complex environments 2 Location: Pavilion-Hall3 Session Chair: Prof. Taejung Kim , Inha University, Korea, Republic of (South Korea)
Pavilion-Hall3	
10:30am - 12:00pm	2-Laser Scanning 2023 2: Vegetation & Terrain Location: Pavilion-Hall1 Session Chair: Prof. Bisheng Yang , Wuhan University, China, People's Republic of
Pavilion-Hall1	
10:30am - 12:00pm	2-Navigation, Guidance 2: Navigation, Guidance and Control of Autonomous Vehicles 2 Location: Pavilion-Hall5 Session Chair: Dr. Sidney Givigi , Queen's University, Canada
Pavilion-Hall5	
10:30am - 12:00pm	2-Semantic 3D 2: Semantic segmentation and satellite image time series 2 Location: Pavilion-Hall2 Session Chair: Dr. Ksenia Bittner , German Aerospace Center (DLR), Germany
Pavilion-Hall2	
10:30am - 12:00pm	4-Smart Forests 4: Close range sensing I - sensors and solutions 4 Location: Babylon Session Chair: Dr. Eetu Puttonen , National Land Survey of Finland, Finland
Babylon	
10:30am - 12:00pm	ADP - 4: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 4 Location: Pavilion-Hall6 Session Chair: Hussein Abdulmuttalib , Dubai Municipality, United Arab Emirates
Pavilion-Hall6	
12:00pm - 1:15pm	Lunch
1:30pm - 3:00pm	1-GI4SDGS: Assessing SDGs progress by integrating geospatial and statistical information Location: Pavilion-Hall3 Session Chair: Prof. Songnian Li , Toronto Metropolitan University, Canada Session Chair: Prof. ORHAN ALTAN , ITU-ISPRS, Turkiye
Pavilion-Hall3	
1:30pm - 3:00pm	12-Satellite Remote Sensing 12: Remote Sensing for Urban Thermal Environment Monitoring and Analysis 12 Location: White Nile Session Chair: Prof. Nagwa El-Ashmawy , National Water Research Center, Egypt
White Nile	
1:30pm - 3:00pm	3-GeoHB 2023 3: GeoHB 2023 3 Location: Morgana Session Chair: Dr. Yingwei Yan , National University of Singapore, Singapore Session Chair: Prof. Wei Huang , Tongji University, China, People's Republic of
Morgana	
1:30pm - 3:00pm	3-Laser Scanning 2023 3: Registration & Close-Range Applications 3 Location: Pavilion-Hall5 Session Chair: Prof. Ruisheng Wang , U of Calgary, Canada
Pavilion-Hall5	
1:30pm - 3:00pm	

Pavilion-Hall2	3-Semantic 3D 3: Buildings, roads, and segmentation 3 Location: Pavilion-Hall2 Session Chair: Dr. Franz Rottensteiner , Leibniz Universität Hannover, Germany
1:30pm - 3:00pm	5-Smart Forests 5: Close range sensing II -Tree-wise analysis and modeling 5 Location: Babylon Session Chair: Dr. Mariana Campos , Finnish Geospatial Research Institute, Finland
1:30pm - 3:00pm	5-UAV-based mapping 5: UAV Application in Agriculture and Forestry (2) Location: Blue Nile Session Chair: Prof. Ayman Habib , Purdue University, United States of America
1:30pm - 3:00pm	AI-PC - 1: AI-Based Point Cloud and Image Understanding 1 Location: Pavilion-Hall1 Session Chair: Prof. Yiping Chen , Sun Yat-sen University, China, People's Republic of Session Chair: Dr. Leila Hashemi Beni , NC A&T State University, United States of America
3:00pm - 3:30pm	Coffee Break
3:30pm - 5:00pm	2-GI4SDGS: Extracting geospatial information for monitoring SDGs Location: Pavilion-Hall3 Session Chair: Prof. Maria Antonia Brovelli , Politecnico di Milano, Italy Session Chair: Prof. Qihao Weng , Hong Kong Polytechnic University, Hong Kong S.A.R. (China)
3:30pm - 5:00pm	4-Semantic 3D 4: Close range and tracking 4 Location: Pavilion-Hall2 Session Chair: Prof. Uwe SÖRGE , University of Stuttgart, Germany
3:30pm - 5:00pm	9-Satellite Remote Sensing 9: Land-Use Land-Cover Classification Location: White Nile Session Chair: Prof. Yahya Zakaria Mohasseb , Arab Academy for Science, Technology & Maritime Transport, Egypt Session Chair: Prof. Ahmed Shaker , Toronto Metropolitan University, Canada
3:30pm - 5:00pm	AI-PC - 2: AI-PC: AI-Based Point Cloud and Image Understanding 2 Location: Pavilion-Hall1 Session Chair: Prof. Yiping Chen , Sun Yat-sen University, China, People's Republic of Session Chair: Prof. Bisheng Yang , Wuhan University, China, People's Republic of
Date: Thursday, 07/Sept/2023	
8:30am - 10:00am	1-Sensor orientation 1: Sensor orientation and calibration for mapping and navigation purposes 1 Location: Pavilion-Hall6 Session Chair: Dr. Henry Meißner , German Aerospace Center, Germany
8:30am - 10:00am	1-SPACE 1: SPACE - Spectral Remote Sensing in the era of AI, Cloud and Edge Computing 1 Location: Morgana Session Chair: Dr. Daniele Cerra , German Aerospace Center (DLR), Germany
8:30am - 10:00am	15-Satellite Remote Sensing 15: Remote Sensing and Mapping Technologies for Urban Studies and Infrastructure Development 15 Location: White Nile Session Chair: Prof. Shabnam Jabari , University of New Brunswick, Canada
8:30am - 10:00am	4-Laser Scanning 2023 4: Object Detection & Segmentation 4 Location: Pavilion-Hall3 Session Chair: Dr. Jan Boehm , University College London, United Kingdom
8:30am - 10:00am	AI-PC - 3: AI-PC: AI-Based Point Cloud and Image Understanding 3 Location: Pavilion-Hall1 Session Chair: Prof. Yiping Chen , Sun Yat-sen University, China, People's Republic of Session Chair: Prof. Zhizhong Kang , China University of Geosciences (Beijing), China, People's Republic of
10:00am - 10:30am	Coffee Break
10:30am - 12:00pm	16-Satellite Remote Sensing 16: Water Quality and Aquatic Ecosystem Monitoring 16 Location: White Nile Session Chair: Dr. Bahram Salehi , SUNY ESF, United States of America
10:30am - 12:00pm	2-Smart Forests 2: Systems and methods at different scales 2 Location: Babylon Session Chair: Prof. Roberto Pierdicca , Università Politecnica delle Marche, Italy

10:30am - 12:00pm	2-SPACE 2: SPACE - Spectral Remote Sensing in the era of AI, Cloud and Edge Computing 2 Location: Morgana Session Chair: Dr. Daniele Cerra , German Aerospace Center (DLR), Germany
Morgana	
10:30am - 12:00pm	AI-PC - 4: AI-PC: AI-Based Point Cloud and Image Understanding 4 Location: Pavilion-Hall1 Session Chair: Prof. Yiping Chen , Sun Yat-sen University, China, People's Republic of Session Chair: Prof. Hongchao Fan , Norwegian University of Science and Technology, Norway
Pavilion-Hall1	
12:00pm - 1:15pm	Lunch
1:30pm - 3:00pm	CM: Closing Ceremony Location: Cleopatra Session Chair: Prof. Naser El-Sheimy , University of Calgary, Canada Session Chair: Prof. Alaa Abdelbary , Arab Academy for Science, Technology and Maritime Transport, Egypt Presentation of the Best Papers Awards Presentation of the Best Presentations Awards Introduction of the GSW'205 Closing Ceremony
Cleopatra	

Presentations

PS - 1: Plenary Session - 1

Time: Sunday, 03/Sept/2023: 8:30am - 10:00am · *Location:* Cleopatra
Session Chair: Naser El-Sheimy, University of Calgary, Canada
Session Chair: Alaa Abdelbary, Arab Academy for Science, Technology and Maritime Transport, Egypt

Software-Defined Intelligent Remote Sensing Satellites

Deren Li
Wuhan University, China

The Future of Digital Twins and Reality Modelling Technologies in the Energy and Construction Sectors

Mohamed Elhabiby
Micro Engineering Tech Inc. (METI), Canada

Welcome Address by President of the African Association of Remote Sensing of the Environment (AARSE)

kamal LABBASSI
African Association of Remote Sensing of the Environment (AARSE), Morocco

Positioning Indoors Using Sound

RUIZHI CHEN
Wuhan University, China, People's Republic of

Welcoming the new ISPRS honorary member and the Brock medal awardee

Lena Halounova
President, ISPRS

PS - 2: Plenary Session - 2

Time: Sunday, 03/Sept/2023: 10:30am - 12:00pm · *Location:* Cleopatra

Session Chair: Naser El-Sheimy, University of Calgary, Canada

Session Chair: Alaa Abdelbary, Arab Academy for Science, Technology and Maritime Transport, Egypt

Presentation of the ISPRS TIF Awards

Senthil Kumar Arumugam

Hindustan Institute of Technology and Science, India

Leveraging Remote Sensing, AI, and GIS for Efficient, Smart Governance: A Future Outlook

Sohail Elabd

Esri, United States of America

Hexagon's Geospatial Solutions: trends and outlook

Klaus Jürgen Neumann

Leica Geosystems, Germany

Transforming the way the geospatial world works

Mohamed Mostafa

Trimble, Canada

The future is in your hands! and your phone is a surveying tool

Pierangelo Rothenbühler

Pix4D SA, Switzerland

NTRA Egypt - Research Activities

Korany Mahmoud

NTRA, Egypt

00-Satellite Remote Sensing 00: Machine Learning Applications in Environmental Monitoring and Disaster Management(1)

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* White Nile
Session Chair: Shabnam Jabari, University of New Brunswick, Canada

Estimation of high resolution carbon flux in urban vegetation ecosystems using multi-satellite data based on machine learning

Bokyung Son¹, Jungho Im¹, Taejun Sung¹, Yeonsu Lee¹, Jongho Kim², Sujong Jeong²

¹Ulsan National Institute of Science and Technology, Korea, Republic of (South Korea); ²Seoul National University, Korea, Republic of (South Korea)

Awareness for the Masses: A Novel Approach in Oil Spill Detection, Identification, and Classification via Multisource Technologies and Artificial Intelligence

Tom Avikasis Cohen

University of Haifa, Israel

Comparison and evaluation of machine-learning-based spatial downscaling approaches on satellite-derived precipitation data

Honglin ZHU, Qiming ZHOU, Aihong CUI

Hong Kong Baptist University, Hong Kong S.A.R. (China)

MONITORING OIL SPILL PROGRESSION AND OIL SPILL VOLUME USING SATELLITE IMAGES

Roel de la Cruz, Paul Leonard Atchong Hilario

Philippine Space Agency, Philippines

LIM-CD: A LARGE-SCALE REMOTE SENSING CHANGE DETECTION DATASET FOR INCREMENTAL MONITORING

Hanchao Zhang¹, Ruiqian Zhang¹, Xiaogang Ning¹, Xiao Huang², You He¹, Yixin Chen¹, Mingzhu Li³, Wei Cui⁴, Jiaming Wang⁵

¹Institute of Photogrammetry and Remote Sensing, Chinese Academy of Surveying and Mapping, Beijing City, P.R. China;

²Department of Environmental Sciences, Emory University, Atlanta, GA, USA; ³School of Surveying, Mapping and Geographic Information, Liaoning Technical University, Fuxin, Liaoning, P.R. China; ⁴School of Civil Engineering, Chongqing Jiaotong University, Chongqing City, P.R. China; ⁵Hubei Key Laboratory of Intelligent Robot, Wuhan Institute of Technology, Wuhan, Hubei, P.R. China

1-Cultural Heritage: Cultural Heritage Visualization and Virtual Restoration 1

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall2

Session Chair: Miaole Hou, Beijing University of Civil Engineering and Architecture, China, People's Republic of

Session Chair: Sisi Zlatanova, UNSW, Faculty of Built Environment, GRID, Australia

Reconstruction of Architectural Heritage with Symmetrical Components

Harshit ¹, Kamal Jain¹, Sisi Zlatanova², Dyutisree Halder¹

¹Geomatics Group, Department of Civil Engineering, Indian Institute of Technology Roorkee, India; ²University of New South Wales, School of Built Environment, GRID, Sydney, Australia

VIRTUAL RESTORATION OF STONE INSCRIPTIONS BASED ON IMAGE ENHANCEMENT AND EDGE DETECTION

Chenxi Sun, Miaole Hou

Beijing University of Civil Engineering and Architecture, China, People's Republic of

EXTRACTION OF PAINT LOSS IN ANCIENT MURALS BASED ON 3D RESIDUAL NEURAL NETWORK

Shuyang Li^{1,2}, Miaole Hou^{1,2}, Penghui Cao³, Shuqiang Lyu^{1,2}

¹School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, No.15 Yongyuan Road, Daxing District, Beijing, China; ²Beijing Key Laboratory for Architectural Heritage Fine Reconstruction & Health Monitoring;

³Shenzhen Feima Robotics Technology Co.,LTD., No.8 Heiquan Road, Haidian Distruct, Beijing, China

Point-Region Merge of Point Cloud on Fractured Objects for 3D Fragment Reassembly

Anni Wang, Penglin Zhang, Jiangping Chen, Yuqi Tang

School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China

Addressing class imbalance for training a multi-task classifier in the context of silk heritage

Mareike Dorozynski

Leibniz Universität Hannover, Germany

1-Indoor 3D 1: Indoor 3D 1

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Babylon

Session Chair: Zhizhong Kang, China University of Geosciences (Beijing), China, People's Republic of

ALTERNATIVE LIDAR TECHNOLOGIES FOR STOCKPILE MONITORING AND REPORTING

Yerassyl Koshan, Raja Manish, Mina Joseph, Ayman Habib

Purdue University, United States of America

A Camera-LiDAR Calibration Method Assisted by Indoor Spatial Structure

Chenming YE^{1,2,3}, Zhizhong Kang^{1,2,3}, Xiaoyu Guo^{1,2,3}

¹China University of Geosciences, Beijing, China, People's Republic of; ²Research Center of Lunar and Planetary Remote Sensing Exploration, China University of Geosciences (Beijing); ³Subcenter of International Cooperation and Research on Lunar and Planetary Exploration, Center of Space Exploration, Ministry of Education of The People's Republic of China

MR-MD:Multi-Robot Mapping with Manhattan Descriptor

Haiyang Wu^{1,2,3}, Ruofei Zhong^{1,2,3}, Donghai Xie^{1,2,3}, Chi Chen^{4,5,6}, Jie Tang^{1,2,3}, Chaohong Wu^{1,2,3}, Xingyu Qi^{1,2,3}

¹Key Laboratory of 3D Information Acquisition and Application, MOE, Capital Normal University, Beijing 100048, China; ²Base of the State Key Laboratory of Urban Environmental Process and Digital Modeling, Capital Normal University, Beijing 100048, China; ³College of Resource Environment and Tourism, Capital Normal University, Beijing 100048, China; ⁴State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430072, China; ⁵Engineering Research Center of Space-Time Data Capturing and Smart Application, the Ministry of Education of P.R.C., Wuhan 430072, China; ⁶Institute of Geospatial Intelligence, Wuhan University, Wuhan 430072, China

Reverse domain adaptation for indoor camera pose regression

Debaditya Acharya¹, Kourosh Khoshelham²

¹RMIT University, Australia; ²The University of Melbourne

Texture-based separation to refine building meshes

Jelle Vermandere, Maarten Bassier, Maarten Vergauwen

KU Leuven, Belgium

1-Mobile Mapping Technologies 1: Mobile Mapping Technologies and HD Maps 1

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall5

Session Chair: Kai-Wei Chiang, National Cheng Kung University, Taiwan

LiDAR Matching Strategies For HD Point Cloud Map Generation In Urban Area

Jou-An Chen, Surachet Srinara, Yu-Ting Chiu, Kai-Wei Chiang

National Cheng Kung University, Taiwan

Alternative GCP Sources for Accurate HD Map Production

Meng-Lun Tsai, Kai-Wei Chiang, Chih-Yun Hsieh, Sean Lin, Surachet Srinara, Yu-Ting Chiu

National Cheng Kung University, Taiwan

Establishment of HD Maps Verification and Validation Procedure with OpenDRIVE and Autoware (Lanelet2) Formats

Kai-Wei Chiang¹, Meng-Lun Tsai¹, Sean Lin¹, Yen-En Huang¹, Jhih-Cing Zeng¹, Yi-Feng Chang¹, Jou-An Chen¹, Yung-Chieh Huang², Chin-Sung Yang¹, Jyh-Ching Juang³, Chi-Kuei Wang¹, Ching-Fu Lin³, Jeffrey Lee⁴, Hatem Darweesh⁵, Pei-Ling Li⁶

¹Department of Geomatics, National Cheng Kung University, Taiwan; ²XIANG CHENG ELECTRONIC CO., LTD.; ³Department of Electrical Engineering, National Cheng Kung University, Taiwan; ⁴MSC Software Taiwan, Taiwan; ⁵Graduate School of Informatics, Nagoya University, Japan; ⁶Department of Resources Engineering, National Cheng Kung University, Taiwan

The Development of a Camera/HD Maps/INS/GNSS Fusion Scheme for Lane Level Vehicular Navigation Applications in Urban Area

Tung-Hua Yeh¹, Kai-Wei Chiang¹, Syun Tsai¹, Pei-Ru Lu¹, Pei-Ling Li²

¹National Cheng Kung University, Taiwan; ²High Definition Map Research Center, Dept. of Geomatics, National Cheng Kung University, Taiwan

1-Precision GNSS 1: Precision GNSS 1

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall6
Session Chair: Joao Francisco Galera Monico, Universidade Estadual Paulista - Unesp, Brazil

Assessment of STEC Estimation quality using GNSS PPP Fixed.

Joao Francisco Galera Monico¹, Paulo Sergio De Oliveira Junior², Vinicius Stuaní Amadeo Pereira³, Brian Leite Machado¹, André Luiz Almeida Silva⁴

¹Universidade Estadual Paulista - Unesp, Brazil; ²Universidade Federal do Paraná - UFPR; ³Universidade Tecnica Federal do Paraná - UTFPR; ⁴Instituto Tecnológico da Aeronáutica - ITA

Ionospheric irregularities measured by ground-based and satellite-embedded receivers: analysis of S4 index in a low latitude region

Daniele Barroca Marra Alves¹, Gabriel Oliveira Jerez¹, Raphael Silva Nespolo¹, Manuel Hernández-Pajares², João Francisco Galera Monico¹

¹São Paulo State University - UNESP, Brazil; ²Universitat Politècnica de Catalunya (UPC), Department of Mathematics

IONOSPHERIC TEMPORAL-SPATIAL CORRELATION ANALYSIS USING GNSS NETWORKS OVER CHINA

Yan Xiang¹, Zhongqi Li¹, Ningbo Wang², Ling Pei¹, Wenxian Yu¹

¹Shanghai Jiaotong University, China; ²Aerospace Information Research Institute (AIR), Chinese Academy of Sciences

Comparative Analysis of the Accuracy of Classical Tropospheric Models Based on Measured Meteorological Elements

Qinglan Zhang^{1,2}, Peng Zhang¹, Jun Chang⁴, Zhanyi Sun¹, Xianbing Liang^{*3}, Fan Wang^{*5}

¹National Geomatics Center of China, People's Republic of China; ²Wuhan University, People's Republic of China; ³Chongqing institute of Surveying and Mapping, MNR; ⁴The First Geodetic Surveying Brigade of MNR, Xi'an, China; ⁵China Dayou Positioning Intelligence (Anqing) Co., Ltd.

1-Robotics for Mapping 1: Robotics for Mapping 1

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Nefertiti

Session Chair: Ville Lehtola, University of Twente, Netherlands, The

4D radar/IMU/GNSS integrated positioning and mapping for large-scale harsh environments

Binliang Wang¹, Yuan Zhuang¹, NASHWA EL-BENDARY²

¹Wuhan University, China; ²Arab Academy for Science, Technology, and Maritime Transport (AASTMT), ASWAN-EGYPT

EVALUATION OF INTEL REALSENSE D455 CAMERA DEPTH ESTIMATION FOR INDOOR SLAM APPLICATIONS

Patrick Hübner, Jiwei Hou, Dorota Iwaszczuk

Technical University of Darmstadt, Germany

A test on collaborative vision and UWB-based positioning

Mert Gurturk¹, Andrea Masiero², Charles Toth³, Paolo Dabove⁴, Vincenzo Di Pietra⁴, Antonio Vettore⁵, Alberto Guarnieri⁵, Irene Cortesi², Eugenio Pellis², Metin Soykan¹

¹Yildiz Technical University, Istanbul, Turkey; ²University of Florence, Italy; ³The Ohio State University, US; ⁴Polytechnic of Turin, Italy; ⁵University of Padua, Italy

RESEARCH ON LIDAR SLAM METHOD WITH FUSED POINT CLOUD INTENSITY INFORMATION

He Huang, Ren zhong Wang, Junxing Yang, Chaowei Ma, Tian jiao Wang

Beijing University of Civil Engineering of Architecture, China, People's Republic of

1-SARcon 2023 1: SARcon 2023 1

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Morgana
Session Chair: Michele Crosetto, cttc, Spain

Advanced analysis tools for the European Ground Motion Service data

Michele Crosetto¹, Saeedeh Shahbazi¹, María Cuevas-González¹, José Navarro¹, Marek Mróz²

¹CTTC, Spain; ²University of Warmia and Mazury, Poland

Benchmark Dataset for Building Segmentation and Height Estimation from Single SAR Imagery

Yao Sun¹, Lichao Mou¹, Yi Wang², Chenying Liu², Conrad Albrecht², Xiao Xiang Zhu¹

¹Data Science in Earth Observation, Technical University of Munich, Germany; ²Remote Sensing Technology Institute, German Aerospace Center (DLR), Germany

A Fully Connected Change Detection Method of SAR Images Fusing Original Image Features and Change Detection Results

Zhentao Sun¹, Fuzhou Duan^{1,2}, Hongliang Guan^{1,2}, Fan Yang¹, Yanhui Wang¹, Wenji Zhao¹

¹College of Resources Environment and Tourism, Capital Normal University; ²Engineering Research Center of the Ministry of Education of Space Information Technology

DIFFERENTIAL SAR TOMOGRAPHY OF LARGE-SCALE WATER CONSERVANCY PROJECTS UNDER STEEP TERRAIN--THE CASE STUDY OF LAXIWA HYDROPOWER STATION

Long Li, Lei Pang, Conghua Li

Beijing University Of Civil Engineering And Architecture, China, People's Republic of

1-Underwater Mapping 1: Underwater Mapping¹

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall3
Session Chair: Dimitrios Skarlatos, Cyprus University of Technology, Cyprus
Session Chair: Gottfried Mandlbürger, TU Wien, Austria

INTRODUCTION AND VALIDATION OF A NOVEL CALIBRATION FRAME

Alaa Anas Mufti^{1,2}, Petra Helmholz¹, Iain Parnum¹, David Belton¹

¹Curtin University, School of Earth and Planetary Sciences, Australia; ²King Abdulaziz University, Saudi Arabia

An open-source, data logging device for marine-based surveys

Alaa Anas Mufti^{1,2}, Petra Helmholz¹, Iain Parnum¹, David Belton¹

¹Curtin University, Perth WA 6845 Australia; ²King Abdulaziz University, Rabigh 25732, Saudi Arabia

A DECADE OF PROGRESS IN TOPO-BATHYMETRIC LASER SCANNING EXEMPLIFIED BY THE PIELACH RIVER DATASET

Gottfried Mandlbürger¹, Martin Pfennigbauer², Roland Schwarz², Florian Pöppel¹

¹TU Wien, Department of Geodesy and Geoinformation, Austria; ²RIEGL Laser Measurement Systems GmbH, Austria

Investigation of the Challenges of Underwater-Visual-Monocular-SLAM

Michele Grimaldi^{1,3}, David Nakath^{1,2}, Mengkun She^{1,2}, Kevin Köser^{1,2}

¹Oceanic Machine Vision, GEOMAR Helmholtz Centre for Ocean Research Kiel, Wischhofstrasse 1-3, 24148 Kiel, Germany;
²Marine Data Science, Department of Computer Science, Christian-Albrechts-Universität zu Kiel, 24118 Kiel, Germany; ³Computer Vision and Robotics Research Institute (VICOROB), University of Girona, 17003 Girona, Spain

3D Mapping of Benthic Habitat Using XGBoost and Structure from Motion Photogrammetry

Salem Morsy^{1,2}, Ana-Belén Yáñez S.^{1,3}, Katleen Robert¹

¹School of Ocean Technology, Fisheries and Marine Institute, Memorial University of Newfoundland, Canada; ²Public Works Department, Faculty of Engineering, Cairo University; ³School of Fisheries, Fisheries and Marine Institute, Memorial University of Newfoundland, Canada

3DS - 1: 3D Sensing for Smart Cities 1

Time: Sunday, 03/Sept/2023: 1:30pm - 3:00pm · *Location:* Blue Nile
Session Chair: Chenglu Wen, Xiamen University, China, People's Republic of

DEVELOPING COMPLETE URBAN DIGITAL TWINS IN BUSY ENVIRONMENTS: A FRAMEWORK FOR FACILITATING 3D MODEL GENERATION FROM MULTI-SOURCE POINT CLOUD DATA

Mohamed Ismail, Ahmed Shaker, Songnian Li

Department of Civil Engineering, Toronto Metropolitan University, 350 Victoria Street, Toronto, Ontario, M5B2K3 Canada

The use of breaklines of hydrographic objects in three-dimensional modeling of cities

Polina Kuklina, Sergey Tyurin, Olga Artemyeva

Saint Petersburg State University, Russian Federation

3D MODELING OF ROAD INFRASTRUCTURES ACCORDING TO CITYGML 3.0 AND ITS CITYJSON ENCODING

Anass Yarroudh¹, Gilles-Antoine Nys¹, Rafika Hajji²

¹Geomatics Unit, University of Liège; ²College of Geomatic Sciences and Surveying Engineering, Institute of Agronomy and Veterinary Medicine

Virtual Sparse Convolution for Multimodal 3D Object Detection

Chenglu Wen, Hai Wu, Cheng Wang

Xiamen University, China, People's Republic of

1-Satellite Remote Sensing 1: Remote Sensing Applications in Agricultural Monitoring and Crop Analysis (2)

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Blue Nile

Session Chair: ORHAN ALTAN, ITU-ISPRS, Turkiye

Session Chair: Yahya Zakaria Mohasseb, Arab Academy for Science, Technology & Maritime Transport, Egypt

SATELLITE REMOTE SENSING FOR ASSESSING THE SPATIAL-TEMPORAL CHANGES OF THE ECOLOGICAL STATE OF THE AGRICULTURAL LANDS IN ARMENIA

Grigor Ayyazyan, Shushanik Asmaryan

Center for Ecological-Noosphere Studies National Academy of Sciences, RA, Armenia

GRASS COVER, TREE DENSITY, AND CROP DEVELOPMENT OF MEDITERRANEAN ORCHARDS FROM HIGH RESOLUTION DATA

Dominique COURAULT, Pierre ROUAULT, Guillaume POUGET, Fabrice FLAMAIN

INRAE, France

Impact of UAV and Sentinel-2A Imagery Fusion on Vegetation Indices Performance

Ayyappa Reddy Allu, Shashi Mesapam

National Institute of Technology Warangal, India

PHILIPPINE EARTH OBSERVATION SATELLITE MISSIONS AND APPLICATIONS: A DECADAL SURVEY

Gay Jane Perez^{1,2}, Jamaica Pangasinan¹, James Cesar Refran¹, Jennifer De Maligaya¹, Odette Enricuso¹, Joel Joseph Jr. Marciano^{1,2}

¹Philippine Space Agency, Philippines; ²University of the Philippines Diliman, Philippines

2-Cultural Heritage: Cultural Heritage Visualization and Virtual Restoration 2

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall3

Session Chair: Miaole Hou, Beijing University of Civil Engineering and Architecture, China, People's Republic of

Session Chair: Sisi Zlatanova, UNSW, Faculty of Built Environment, GRID, Australia

EEI-NET: EDGE-ENHANCED INTERPOLATION NETWORK FOR SEMANTIC SEGMENTATION OF HISTORICAL BUILDING POINT CLOUDS

YaQian Xue¹, RuiJu Zhang^{1,2,3}, Jian Wang^{1,4}, JiangHong Zhao^{1,2,3}, Lei Pang¹

¹School of Geomatic and Urban Information, Beijing University of Civil Engineering and Architecture, Beijing 102616, China;

²Engineering Research Center of Representative Building and Architectural Heritage Database, Ministry of Education, Beijing 102616, China; ³Beijing Key Laboratory for Architectural Heritage Fine Reconstruction & Health Monitoring, Beijing 102616, China;

⁴Institute of Science and Technology Development, Beijing University of Civil Engineering and Architecture, Beijing 100044, China

A REVIEW OF POINT CLOUD SEGMENTATION OF ARCHITECTURAL CULTURAL HERITAGE

Jianghong Zhao, Xinnan Hua, Jia Yang, Lisha Yin, Xin Wang, ZiLin Liu

School of Geomatic and Urban Information, Beijing University of Civil Engineering and Architecture, Beijing 102616, China

The Role of Artificial Intelligence and Machine Learning in preserving Cultural Heritage and Art Works via Virtual Restoration

Jomana Ahmed Gaber, Prof. Dr. Sherin Moustafa Youssef, Dr. Karma Mohamed Fathalla

Arab Academy for Science, Technology and Maritime Transport, Egypt

i-blueCulture: A novel system of real-time underwater image transmission in a VR environment, as a new managerial approach for Underwater Cultural Heritage

Apostolos Vlachos¹, Stelios Krinidis¹, Kimon Papadimitriou², Angelos Manglis³, Anastasia Fourkiotou⁴, Dimitrios Tzovaras¹

¹Information Technologies Institute Centre for Research and Technology Hellas; ²Aristotle University of Thessaloniki, Faculty of Engineering, School of Rural and Surveying Engineering; ³Skopelos Dive Center; ⁴Atlantis Consulting S.A.

Comparison of iPhone 13 Pro's Camera and LiDAR Sensor to UAS Photogrammetric Model of the Great Pyramid of Giza

Rami Tamimi, Charles Toth

The Ohio State University, United States of America

2-Indoor 3D 2: Indoor 3D 2

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Babylon
Session Chair: Lucía Díaz-Vilariño, Universidade de Vigo (Q8650002B), Spain
Session Chair: Youness Dehbi, Hafencity University Hamburg, Germany

A benchmark of synthetic labeling point clouds derived from as-built BIM for indoor scene understanding

Shengjun Tang, Hongsheng Huang, Yunjie Zhang, Renzhong Guo, Baoding Zhou, Weixi Wang, Jiasong Zhu
Shenzhen University

Interactive capture and labelling of point clouds with HoloLens 2 for semantic segmentation

Veracruz González, Jesús Balado, Antonio Fernández, Lucía Díaz-Vilariño
CINTECX, Universidade de Vigo, GeoTECH group, 36310 Vigo, Spain

TOWARDS PEDESTRIAN ACCESSIBILITY ANALYSIS IN INDOOR ENVIRONMENTS WITH CROWDS

Liu Liu¹, Sisi Zlatanova²

¹College of Architecture and Urban Planning, Tongji University, Shanghai, P.R. China; ²Faculty of Built Environment, UNSW Sydney, Red Centre, Sydney, New South Wales, Australia

Needle in a haystack: feasibility of identifying small safety assets from point clouds using deep learning

Geethanjali Anjanappa¹, Shayan Nikoohemat¹, Sander Oude Elberink¹, Robert Voute², Ville Lehtola¹

¹University of Twente, Netherlands; ²CGI Inc, Netherlands

Construction of a dual-task model for indoor scene recognition and semantic segmentation based on point clouds

Jiang Jianwu^{1,2}, Kang Zhizhong¹, Li Jingwen²

¹China University of Geosciences, Beijing 100083, China; ²Guilin University of Technology, Guilin 541004, China

Automatic generation of routing graphs for indoor-outdoor transitional space to support seamless navigation

Zhiyong Wang¹, Sisi Zlatanova², Mir Abolfazl Mostafavi³, Kourosh Khoshelham⁴, Lucía Díaz-Vilariño⁵, Ki-Joune Li⁶

¹South China University of Technology, China, People's Republic of; ²University of South Wales; ³Université Laval; ⁴University of Melbourne; ⁵Universidade de Vigo; ⁶Pusan National University

2-Mobile Mapping Technologies 2: Mobile Mapping Technologies and HD Maps 2

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall5

Session Chair: Mengchi Ai, University of Calgary, Canada

Session Chair: Charles Toth, The Ohio State University, United States of America

Mapping speed bumps from MLS point clouds data

Hongchao Fan¹, Yiping Chen²

¹Norwegian University of Science and Technology, Norway; ²Sun Yat-Sen University

Vehicle Occlusion Removal from Single Aerial Images Using Generative Adversarial Networks

Meijie Xiang¹, Seyedmajid Azimi², Reza Bahmanyar², Uwe Sörgel¹, Peter Reinartz²

¹University of Stuttgart, Germany; ²German Aerospace Center, Germany

VANISHING POINT AIDED LANE DETECTION USING A MULTI-SENSOR SYSTEM

Zifan Zhang, Gyoungmin Kang, Mengchi Ai, Naser El-Shiemy

University of Calgary, Canada

LIDAR-INERTIAL LOCALIZATION WITH GROUND CONSTRAINT IN A POINT CLOUD MAP

Mengchi Ai¹, Ilyar Asl Sabbaghian Hokmabadi¹, Mohamed Elhabiby², Mohamed Moussa², Ahmed Zekry², Ahmed Mohamed¹, Naser El-Sheimy¹

¹University of Calgary, Canada; ²Micro Engineering Tech. Inc.

LINE AND POLYGON TOPOLOGY IN OPENDRIVE MODELLING

Janos Mate Logo, Arpad Dr. Barsi

Budapest University of Technology and Economics, Hungary

2-Precision GNSS 2: Precision GNSS 2

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall6

Session Chair: Xiaohong Zhang, Wuhan University, China, People's Republic of

Session Chair: Yan Xiang, Shanghai Jiaotong University, China, People's Republic of

Investigation of the Lithosphere-Atmosphere-Ionosphere Coupling during the 2020 Beirut Explosion By Geodetic and Seismological Data

Mohamed Freeshah^{1,2}, Erman Şentürk³, Xiaohong Zhang¹, Hamdullah Livaoğlu⁴, Xiaodong Ren¹, Reda Fekry², Nahed Osama⁵

¹School of Geodesy and Geomatics, Wuhan University, 129 Luoyu Road, Wuhan 430079, China; ²Geomatics Engineering Department, Faculty of Engineering at Shoubra, Benha University, 108 Shoubra St., Cairo 11629, Egypt; ³Department of Geomatics Engineering, Kocaeli University, Turkey; ⁴Department of Geophysical Engineering, Kocaeli University, Turkey; ⁵State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, 129 Luoyu Road, Wuhan 430079, China

PRECISION TRIANGULAR ELEVATION MEASUREMENT OF LARGE BRIDGES IN UNSTABLE ENVIRONMENTS

Xuewei Zhang¹, Keliang Ding¹, Haigang Meng², Zhiheng He¹, Xi Zhang¹

¹School of Geomatics and Urban Spatial Information, Beijing University of Civil Engineering and Architecture; ²Beijing Urban Rural Construction Group Co, Ltd

Seismo-Ionospheric Anomalies Prior to Two-Successive Earthquakes Mw 6.6 and 7.1 Taitung, Taiwan: Pre Results

Mohamed Freeshah^{1,2}, Erman Şentürk³, Xiaohong Zhang¹, Ahmed Abdelaziz⁴, Nahed Osama⁴

¹School of Geodesy and Geomatics, Wuhan University, China; ²Geomatics Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt; ³Department of Geomatics Engineering, Kocaeli University, Turkey; ⁴State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China

GNSS Real-time Early Warning Technology for Expansive Soil Landslide

Zi Chen, Guanwen Huang, Le Wang

Chang'an University, China, People's Republic of

Investigation of precursor ionospheric anomalies associated with two M > 7 Earthquakes using a new machine-learning technique

Mohamed Freeshah^{1,5}, Mohd Saqib², Erman Şentürk³, Muhammad Arqim Adil⁴, Xiaohong Zhang¹

¹Wuhan University, China, People's Republic of; ²Department of Mathematics and Computing, Indian Institute of Technology (ISM), Dhanbad, Jharkhand, India; ³Department of Geomatics, Kocaeli University, Kocaeli, Turkey; ⁴Department of Global Navigation Satellite Systems, Institute of Space Technology, Islamabad, Pakistan; ⁵Geomatics Engineering Department, Faculty of Engineering at Shoubra, Benha University, Cairo, Egypt

2-Robotics for Mapping 2: Robotics for Mapping 2

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Nefertiti

Session Chair: Andrea Masiero, University of Florence, Italy

Research on Sensor Fusion-Based Calibration and Real-Time Point Cloud Mapping Methods for Laser Radar and IMU

He Huang, Xin Zhang, Junxing Yang, Yao Fu, Junyang Bian

Beijing University of Civil Engineering and Architecture

PMLIO: Panoramic Tightly-Coupled Multi-LiDAR-Inertial Odometry and Mapping

Yuhang Xu^{1,2,3}, Chi Chen^{1,2,3}, Zhiye Wang^{1,2,3}, Bisheng Yang^{1,2,3}, Weitong Wu^{1,2,3}, Liuchun Li⁴, Jiayu Wu^{1,2,3}, LeYi Zhao^{1,2,3}

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University Wuhan, China;

²Engineering Research Center for Spatio-temporal Data Smart Acquisition and Application, Ministry of Education of China, Wuhan University, Wuhan, China; ³Institute of Artificial Intelligence in Geomatics, Wuhan University, Wuhan, China; ⁴Institute of Artificial Intelligence, School of Computer Science. Wuhan University

BACKPACK SYSTEM FOR CAPTURING 3D POINT CLOUDS OF FORESTS

Mona Goebel, Dorota Iwaszczuk

Technical University of Darmstadt, Remote Sensing and Image Analysis, Germany

A SuperPoint neural network implementation for accurate feature extraction in unstructured environments

Georgios Petrakis

Technical University of Crete, Greece

2-SARcon 2023 2: SARcon 2023 2

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Morgana
Session Chair: Junichi Susaki, Kyoto University, Japan

Monitoring Land Subsidence in Egypt's Northern West Coast Using Interferometric Synthetic Aperture Radar.

Tamer ElGharbawi

Civil Engineering Department, Faculty of Engineering, Suez Canal University, Ismailia City, Egypt

Ground Movement Analysis in Post-mining City Using MTInSAR with Help of European Ground Motion Service

Chia-Hsiang Yang, Carsten Stemmler, Andreas Mütterthies

EFTAS Remote Sensing Transfer of Technology GmbH, Germany

Deep and Machine Learning for monitoring groundwater storage basins and hydrological changes using the Gravity Recovery and Climate Experiment (GRACE) Satellite Mission and Sentinel-1 data for the Ganga River basin in the Indian region.

Kayithi Naga Sai¹, Abhinav Galodha², Parnika Jain³, Deepak Sharma⁴

¹Department of Mechanical Engineering, IIT Delhi, India; ²School of Interdisciplinary Research, SIRe, IIT Delhi, India; ³The Neerja Modi School, Jaipur, Rajasthan, India; ⁴Department of Biochemical Engineering and Biotechnology, IIT Delhi, India

EUROPEAN GROUND MOTION SERVICE FOR BRIDGE MONITORING: TEMPORAL AND THERMAL DEFORMATION CROSS-CHECK USING COSMO-SKYMED INSAR

Rasoul Eskandari, Marco Scaioni

Politecnico di Milano, Italy

2-Satellite Remote Sensing 2: Deep Learning for Remote Sensing Image Analysis and Land Cover Classification(2)

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* White Nile

Session Chair: Ahmed Shaker, Toronto Metropolitan University, Canada

Session Chair: Amr Hanafi Ali, Faculty of Engineering at Shoubra - Benha University, Egypt

BURNT AREAS SEMANTIC SEGMENTATION FROM SAR SENTINEL-1 DATA USING THE U-NET NETWORK TRAINED WITH SEMI-AUTOMATED ANNOTATIONS

Aline Barroca Marra¹, Maria de Lourdes Bueno Trindade Galo¹, Fabio Giulio Tonolo², Edson Eyji Sano³, Vinicius Silva Werneck Orlando¹

¹São Paulo State University (UNESP), Presidente Prudente, São Paulo, Brazil; ²Politecnico di Torino, Dept. of Architecture and Design, Turin, Italy; ³Embrapa Cerrados, Planaltina, Distrito Federal, Brazil

INTER-REGION TRANSFER LEARNING FOR LAND USE LAND COVER CLASSIFICATION

Jayanth Siddamsetty¹, Marco Stricker¹, Marcela Charfuelan¹, Marlon Nuske¹, Andreas Dengel^{1,2}

¹DFKI GmbH, Kaiserslautern, Germany; ²University of Kaiserslautern-Landau, Kaiserslautern, Germany

Exploring the Potential of Open-Data for Oceans Monitoring with AI analytics

Lizwe Wandile Mdakane, Bolelang Sibolla, Shelley Haupt

Council for Scientific and Industrial Research (CSIR), South Africa

3DS - 2: 3D Sensing for Smart Cities 2

Time: Sunday, 03/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall2

Session Chair: Yan Xia, Technical University of Munich, Germany

Derivation of building structures from noisy digital surface models

Thomas Krauß

DLR, German Aerospace Center, Germany

On acceleration of thermal simulation of urban scenes with the application of an evolutionary algorithm to tree planting strategies

Dimitri Bulatov, Marko Hecht, Benedikt Kottler, Jonas Mispelhorn, Eva Strauß

Fraunhofer IOSB Ettlingen, Germany

METAMORPHISM OF ALS POINT DATA FOR MULTITUDE APPLICATION

Jayati Vijaywargiya¹, Anandakumar M Ramiya²

¹Indian Institute of Space Science and Technology, India; ²Indian Institute of Space Science and Technology, India

Generation of 3-D Large-Scale Maps using LiDAR Point Cloud Data

Leena Dhruwa¹, Pradeep Kumar Garg²

¹Indian Institute of Technology Roorkee, India; ²Indian Institute of Technology Roorkee, India

1-Crowdsourcing 1: Crowdsourcing for Global Mapping (Crowdsourcing Data Analysis and Mapping Techniques1

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* Morgana
Session Chair: Hongchao Fan, Norwegian University of Science and Technology, Norway

Cell phone GeoBigData for the analysis of presences and movements of people

salvatore amaduzzi
University of Udine, Italy

A STUDY OF RAPID MAPPING TECHNOLOGY BASED ON ADOBE ILLUSTRATOR

Tingting Zhao^{1,2,3}, Hongsheng Li⁴, Xinli Di¹, Zhongliang Cai⁵, Yewu Wan¹, Ye Zhang^{1,2,3}, Xinpeng Wang^{1,2,3}, Yunlu Peng^{1,2,3}, Linlin Che¹, Hong Xu⁶

¹National Geomatics Center of China, China; ²Hubei LuoJia Laboratory, China; ³Key Laboratory of Spatio-temporal Information and Intelligent Services (LSIIS), MNR, China; ⁴Hebei Provincial Institute of Cartography, China; ⁵Wuhan University, China; ⁶High-Tech Research & Development Center (HTRDC) of the Ministry of Science & Technology, P.R.C.

FROM MULTIPLE POLYGONS TO SINGLE GEOMETRY: OPTIMIZATION OF POLYGON INTEGRATION FOR CROWDSOURCED DATA

David Collmar, Volker Walter, Michael Kölle, Uwe Sörgel
Universität Stuttgart, Germany

A classification model for the inference of spatial precision of OpenStreetMap buildings with intrinsic indicators

Ibrahim Maidaneh Abdi², Arnaud Le Guilcher¹, Ana Maria Olteanu Raimond¹

¹Univ Gustave Eiffel, IGN-ENSG, Saint-Mandé, France; ²University of Djibouti, Djibouti, Djibouti

1-Digital Construction 1: Reality Capture & 3D printing 1

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall2

Session Chair: Kourosh Khoshelham, University of Melbourne, Australia

Session Chair: Jónatas Valença, CERIS, ULisboa, Portugal

Reality Capture Methods for Remote Inspection of Building Work

Steffen Becker¹, Sajjad Einizina¹, Kourosh Khoshelham¹, Marko Radanovic¹, Kaveh Mirzaei², Yihai Fang²

¹University of Melbourne, Australia; ²Monash University, Australia

A GEO-DATABASE FOR 3D-AIDED MULTI-EPOCH DOCUMENTATION OF BRIDGE INSPECTIONS

Federica Gaspari, Federico Barbieri, Juan Pablo Duque, Rebecca Fascia, Francesco Ioli, Giulio Zani, Daniela Carrion, Livio Pinto

Dept. of Civil and Environmental Engineering (DICA), Politecnico di Milano, Milan, Italy

Filament Extraction in 3D Printing of Shotcrete Walls from Terrestrial Laser Scanner Data

Karam Mawas, Mehdi Maboudi, Markus Gerke

University of Braunschweig, Germany

Parameter optimization for a thermal simulation of an urban area

Benedikt Kottler¹, Simon Fischer¹, Eva Strauß¹, Dimitri Bulatov¹, Petra Helmholtz²

¹Fraunhofer IOSB Ettlingen; ²Curtin University, School of Earth and Planetary Sciences

1-Geospatial Data Analytics 1: Geospatial data Analytics 1

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall1

Session Chair: Muralikrishna Iyyanki Venkata, JNT University, India

Session Chair: Maged N. Kamel Boulos, University of Lisbon, Portugal

Multispectral Image Restoration using a Vector-valued Reaction-diffusion based Mixed Noise Removal Technique

Tudor Barbu

Institute of Computer Science of the Romanian Academy - Iasi Branch, Romania

MACHINE LEARNING APPLICATION FOR CARBON ESTIMATION – A CASE STUDY

Prisilla Jayanthi Gandam¹, Murali Krishna Iyyanki²

¹Ecole Centrale School of Engineering, Mahindra University, Jeedimetla, Hyderabad, India; ²Smart Village Movement in Alliance with Berkeley Haas, Hyderabad, India.

DETECTION OF HAZARDOUS MATERIALS IN LASER CUTTING USING DEEP LEARNING AND SPECKLE SENSING

Mohamed Abdallah Salem, Ahmed Elshenawy, hamdy Ashour

AASTMT, Egypt

Machine Learning-Based Estimation of Chlorophyll-a Concentrations using 1D Convolutional Neural Networks and Multispectral Imagery

Salem Ibrahim Salem¹, Muhammad Salah², Hiroto Higa³

¹Faculty of Engineering, Kyoto University of Advanced Science, Kyoto, Japan; ²Graduate School of Engineering, Kyoto University of Advanced Science, Kyoto, Japan; ³Institute of Urban Innovation, Yokohama National University, Yokohama, Japan

Artificial Neural Network for Prediction of Land Subsidence in Mudslides Region through InSAR and Rain Data

Anselmo Bettio^{1,2}, Francesco Sansone¹, Alessandros Francesconi^{1,2,3}

¹Stellar Project; ²Centro di Ateneo di Studi e Attività Spaziali "Giuseppe Colombo" - CISAS; ³Department of Industrial Engineering, University of Padova (IT)

1-Openness in Geospatial 1: Openness in Geospatial and Remote Sensing 1

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* Nefertiti

Session Chair: Bolelang Hilda Sibolla, Council for Scientific and Industrial Research, South Africa

Session Chair: Albana KONA, European Commission, Italy

Analysis of Use Cases Towards the Evolution of Europe's Contribution to GEOSS

Candan Eylül Kilsedar¹, Mark Dowell², Margherita Di Leo¹, Jean Dusart³, Alexander Kotsev², Marco Minghini², Albana Kona²

¹Arcadia SIT, under contract with the European Commission, Joint Research Centre, Ispra, Italy; ²European Commission, Joint Research Centre, Ispra, Italy; ³European Commission, Directorate-General for Research and Innovation, Brussels, Belgium

SYSTEM ARCHITECTURE FOR GEOSPATIAL VIRTUAL DATA INTEGRATION IN WEB-BASED APPLICATIONS

Juan Pablo Duque Ordonez, Maria Antonia Brovelli

Department of Civil and Environmental Engineering (DICA), Politecnico di Milano

MAPPING STATISTICAL DATA: POSSIBILITIES OF EUROSTAT-MAP.JS LIBRARY

Andrea Miletić, Ana Kuveždić Divjak, Karlo Kević, Ivana Puškarić

Faculty of Geodesy, University of Zagreb, Croatia

Systems and Architectural Support for Open Data Principles: A marine earth observation perspective

Bolelang Hilda Sibolla, Raymond Nkadameng Molapo, Lufuno Maxwell Vhengani, Lizwe Wandile Mdakane

Council for Scientific and Industrial Research, South Africa

1-Youth Presentation Forum: Youth Presentation Forum

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall5

Session Chair: Mengchi Ai, University of Calgary, Canada

Session Chair: Laxmi Thapa, ISPRS Student Consortium, United Kingdom

OPTICAL AND SAR IMAGE FUSION BASED ON VISUAL SALIENCY FEATURES

Jiacheng Zhang¹, Xiaoyue Ren¹, Jinjin Li¹, Lei Wang², Yuanxin Ye¹

¹Faculty of Geosciences and Environmental Engineering, Southwest Jiaotong University, Chengdu 611756, China; ²Third Engineering Surveying and Mapping Academy in Sichuan Province, Chengdu 610500, China

DEVELOPMENT OF GOOGLE EARTH ENGINE APPLICATION FOR SPATIOTEMPORAL ANALYSIS OF WATER TURBIDITY IN BATAN ESTUARY, AKLAN THROUGH THE HARMONIZATION OF LANDSAT AND SENTINEL-2 IMAGERY

Cristan Dave Zablan¹, Ariel Conferido Blanco^{1,2,3}, Yasmin H. Primavera-Tirol⁴, Kazuo Nadaoka⁵

¹Department of Geodetic Engineering, University of the Philippines Diliman; ²Training Center for Applied Geodesy and Photogrammetry, University of the Philippines; ³Philippine Space Agency; ⁴College of Fisheries and Marine Sciences, Aklan State University; ⁵Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

COMBINED CLOSE RANGE PHOTOGRAMMETRY AND REMOTE SENSING FOR PHOTOVOLTAIC PARKS EFFICIENCY ANALYSIS

Adrian Stefanov Yordanov, Dobromir Ganchev Filipov, Silvia Lyubenova Filipova, Tsvetelina Plamenova Atanasova
UACEG, Bulgaria

PRINCIPAL COMPONENTS VERSUS AUTOENCODERS FOR DIMENSIONALITY REDUCTION: A CASE OF SUPER-RESOLVED OUTPUTS FROM PRISMA HYPERSPECTRAL MISSION DATA

Kavach Mishra¹, Benoit Vozel², Rahul Dev Garg¹

¹Geomatics Engineering Group, Civil Engineering Department, Indian Institute of Technology Roorkee, Roorkee, India; ²MULTIP Research Group, Department IMAGE, Institut d'Electronique et des Technologies du numéRique (IETR) UMR CNRS 6164, Université de Rennes, Lannion, France

3-Precision GNSS 3: Precision GNSS 3

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* Babylon

Session Chair: Ahmed El-Mowafy, Curtin University, Australia

Session Chair: Moustafa Baraka, German University in Cairo (GUC), Egypt

The Impact of Orbital and Clock Errors on Positioning from LEO Constellations and Proposed Orbital Solutions

Ahmed El-Mowafy¹, Kan Wang^{2,3}, Yan Li^{1,4}, Amir Allahvirdizadeh¹

¹Curtin University, Australia; ²University of Chinese Academy of Sciences, Beijing, China; ³National Time Service Center, Chinese Academy of Sciences, Xi'an, China; ⁴East China University of Technology

Leveraging human mobility and pervasive smartphone measurements-based crowdsourcing for developing self-deployable and ubiquitous indoor positioning systems

Ahmed Mansour, Wu Chen, Duoje Weng, Yang Yang, Jingxian Wang

The Hong Kong Polytechnic University (PolyU), The Department of Land Surveying and Geo-Informatics (LSGI), Hong Kong S.A.R. (China)

Quality Analysis of Smartphone GNSS Observations and Impact on Precise Positioning

Farzaneh Zangenehnejad, Yang Gao

University of Calgary, Canada

Quality comprehensive evaluation technique of GNSS observation data

Guanwen Huang, Mengyuan Li, Le Wang

Chang'an University, China, People's Republic of

3-Satellite Remote Sensing 3: Advancements in Remote Sensing for Climate and Environmental Monitoring (Session 1) 3

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* White Nile

Session Chair: Ahmed Shaker, Toronto Metropolitan University, Canada

Session Chair: Gouda Agag, Egyptian Survey Authority, Egypt

Investigation of urban thermal environment using satellite time series data

Siwoo Lee¹, Cheolhee Yoo², Jungho Im¹, Dongjin Cho¹, Yeonsu Lee¹, Dukwon Bae¹

¹Department of Urban Environment Engineering, Ulsan National Institute of Science and Technology, Ulsan, Republic of Korea;

²Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong

MONITORING SUMMER DAYTIME AND NIGHTTIME DECADEAL TRENDS OF LAND SURFACE TEMPERATURE OVER THE NATIONAL CAPITAL REGION DELHI

Prathiba Andavarmalai Palanisamy^{1,2}, Joanna zawadzka², Kamal Jain¹, Stefania Bonafoni³

¹Indian Institute of Technology Roorkee, India; ²Cranfield University, UK; ³University of Perugia, Italy

JITTER ANALYSIS OF QL-3 SATELLITE

Guo Ye, Jun Pan, Mi Wang

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China

CAN RADAR BACKSCATTER RATIO BE USED TO ESTIMATE NDVI AND ACT AS ITS SUBSTITUTE? – A STUDY OVER WINTER WHEAT CROP IN INDIA

Ankur Pandit, Suryakant Sawant, Jayantrao Mohite, Nandan Rajpoot, Srininasu Pappula

TCS Innovation Labs, India

3DS - 3: 3D Sensing for Smart Cities 3

Time: Monday, 04/Sept/2023: 8:30am - 10:00am · *Location:* Blue Nile
Session Chair: Cheng Wang, Xiamen University, China, People's Republic of
Session Chair: Andrea Masiero, University of Florence, Italy

SCP: Scene completion pre-training for 3D object detection

Yiming Shan¹, Yan Xia^{1,2}, Yuhong Chen³, Daniel Cremers^{1,2}

¹Technical University of Munich, Germany; ²Munich Center for Machine Learning (MCML), Germany; ³Chair of Automatic Control Engineering, Technical University of Munich, Germany

Evaluation and comparison of different time of flight cameras for outdoor applications

Zhouyan Qiu^{1,2}, Joaquín Martínez-Sánchez¹, Pedro Arias¹

¹CINTECX, Universidade de Vigo, Applied Geotechnology Group, Vigo, Spain; ²ICT & Innovation Department, Ingeniería Insitu, Vigo, Spain

DEVELOPMENT OF A MACHINE VISION SYSTEM FOR DAMAGE AND OBJECT DETECTION IN TUNNELS USING CONVOLUTIONAL NEURAL NETWORKS

Fatemeh Alidoost^{1,2}, Michael Hahn¹, Gerrit Austen¹

¹Stuttgart University of Applied Sciences (HfT), Germany; ²vigram GmbH, Freiburg, Germany

DETECTION AND SEGMENTATION OF POLE-LIKE OBJECTS IN MOBILE LASER SCANNING POINT CLOUDS

Abdul Awal Md NURUNNABI¹, Yukio Sadahiro², Felix Norman Teferle¹, Debra Laefer³, Jonathan Li⁴

¹University of Luxembourg, Luxembourg; ²The University of Tokyo, Japan; ³NewYork University, USA; ⁴University of Waterloo, Canada

1-PhotoGA 2023 1: PhotoGA 2023 1

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall5

Session Chair: Dimitri Bulatov, Fraunhofer IOSB Ettlingen, Germany

Session Chair: Petra Helmholz, Curtin University, Australia

VIEW GRAPH CONSTRUCTION FOR LARGE-SCALE UAV IMAGES: AN EVALUATION OF STATE-OF-THE-ART METHODS

Junhuan Liu^{1,2}, Yichen Ma¹, San Jiang^{1,2,3}, Qingquan Li², Wanshou Jiang⁴, Lizhe Wang^{1,3}

¹School of Computer Science, China University of Geosciences, Wuhan 430074, China; ²Guangdong Laboratory of Artificial Intelligence and Digital Economy (SZ), Guangdong Shenzhen 518060, China; ³Hubei Key Laboratory of Intelligent Geo-Information Processing, China University of Geosciences, Wuhan 430078, China; ⁴State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430072, China

3D Reconstruction from Multi-view Google Earth Satellite Stereo Images by Generating Virtual RPC based on 3DHomography-based Georeferencing

DongUk Seo, Soon-Yong Park

KyungPook National University, Korea, Republic of (South Korea)

ICEpy4D: A Python Toolkit for Advanced Multi-Epoch Glacier Monitoring with Deep-Learning Photogrammetry

Francesco Ioli¹, Federico Barbieri¹, Federica Gaspari¹, Francesco Nex², Livio Pinto¹

¹Dept. of Civil and Environmental Engineering (DICA), Politecnico di Milano, Milan, Italy; ²Dept. of Earth Observation Science (EOS), Faculty ITC, University of Twente, Enschede, The Netherlands

AN EVALUATION OF STEREO AND MULTIVIEW ALGORITHMS FOR 3D RECONSTRUCTION WITH SYNTHETIC DATA

Mario Fuentes Reyes¹, Pablo d'Angelo¹, Friedrich Fraundorfer^{1,2}

¹German Aerospace Center, Germany; ²Graz University of Technology

SPARSESAT-NERF: Dense Depth Supervised Neural Radiance Fields for Sparse Satellite Images

Lulin Zhang^{1,2}, Ewelina Rupnik²

¹Université de Paris, Institut de physique du globe de Paris, CNRS, Paris, France; ²Université de Gustave Eiffel, IGN-ENSG, LaSTIG, Saint-Mandé, France

2-Crowdsourcing 2: Crowdsourcing for Global Mapping (Crowdsourcing for Environmental Monitoring)2

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* Morgana

Session Chair: Hongchao Fan, Norwegian University of Science and Technology, Norway

DESIGN AND CONSTRUCTION OF A KNOWLEDGE SERVICE SYSTEM FOR GLOBAL LAND COVER SPATIOTEMPORAL CHANGE

Yuewu Wan¹, Xiuli Zhu¹, Xi Zhai¹, Ying Zhang², Tingting Zhao¹, Xinli Di¹, Guangyu Du¹

¹National Geomatics Center of China, China; ²Cartographic Institute of Hebei Province, China

A Crowdsourcing Task Recommendation Method for Global Land Cover Update Considering Volunteer Profile

Xiaoguang Zhou, Qianlan Chen, Dongyang Hou, Yuhang Zhang

Central South University, China, People's Republic of

2-Digital Construction 2: Automated Inspection 2

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall2

Session Chair: Kourosh Khoshelham, University of Melbourne, Australia

Session Chair: Jónatas Valença, CERIS, ULisboa, Portugal

An Improved Mask R-CNN: Extraction of Door and Window Instances on Village Building Façade Images

Daiqi Zhong^{1,2}, Lin He^{1,2}, Yi Lin^{1,2}

¹College of Surveying and Geo-Informatics, Tongji University, 200092 Shanghai, China; ²Research Center of Remote Sensing & Spatial Information Technology, Tongji University, 200092 Shanghai, China

Potential-guided UAV-Flight Path Planning for the Inspection of Complex Structures

Paul Debus, Volker Rodehorst

Bauhaus-Universität Weimar, Germany

EVALUATING CONVNETS AND TRANSFORMER BASED SELF-SUPERVISED ALGORITHMS FOR BUILDING ROOF FORM CLASSIFICATION

Guneet Mutreja, Ksenia Bittner

DLR, Germany

VISION SYSTEM FOR MONITORING SEISMIC TESTS IN CONCRETE SHELLS

Jónatas Valença, Marco Brandão, Eduardo Júlio

CERIS, ULisboa, Portugal

2-Geospatial Data Analytics 2: Airpollution, Health and Society 2

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall1

Session Chair: Muralikrishna Iyyanki Venkata, JNT University, India

Session Chair: Maged N. Kamel Boulos, University of Lisbon, Portugal

Effect of the delay in the reports of COVID-19 cases on near real-time clusters detection

Jean Francois Mas¹, Azucena Pérez Vega², Adrián Ghilardi¹

¹Universidad Nacional Autónoma de México, Mexico; ²Universidad de Guanajuato

The impact of dust pollution from unpaved roads in the Akamas Peninsula, Cyprus using UAV and Sentinel-2 images

Kyriacos Themistocleous^{1,2}, Maria Prodromou^{1,2}

¹Eratosthenes Centre of Excellence, Cyprus; ²Cyprus University of Technology, Cyprus

Vehicle classification in urban regions of the Global South from aerial imagery

Manuel Mühlhaus, Franz Kurz, Arturo Guridi, Reza Bahmanyar, Seyedmajid Azimi, Jens Hellekes

German Aerospace Center, Germany

ATTRIBUTION ANALYSIS OF CLIMATE CHANGE AND HUMAN ACTIVITIES TO WATER VOLUME VARIATION IN LARGE LAKES

Yi Lin^{1,2}, Chen Gao^{1,2}, Xin Li³, Tinghui Zhang^{1,2}, Jie Yu^{1,2}, Yu Rong^{1,2}, Lang Li^{1,2}, Xuefei Zhou⁴, Jianqing Cai⁵, Nico Sneeuw⁵

¹College of Surveying & Geo-Informatics, Tongji University, Shanghai 200092, China; ²Research Center of Remote Sensing & Spatial Information Technology, Shanghai 200092, China; ³Guangxi Zhuang Autonomous Region Land Surveying & Mapping Institute, Guangxi Zhuang Autonomous Region Land 530023, China; ⁴College of Environmental Science and Engineering, Tongji University, Shanghai 200092, China; ⁵Institute of Geodesy, University of Stuttgart, 70174 Stuttgart, Germany

New remote sensing products of Snow cover, SWE and Snow Albedo over China

Zhen Li¹, Ping Zhang¹, Xiaohua Hao², Lingmei Jiang³, Pengfeng Xiao⁴

¹Aerospace Information Research Institute, CAS, China, People's Republic of; ²Northwest Institute of Eco-Environment and Resources, CAS, China, People's Republic of; ³Department of Geographical Science, Beijing Normal University, China, People's Republic of; ⁴School of Geography and Ocean Science, Nanjing University, China, People's Republic of

2-Openness in Geospatial: Openness in Geospatial and Remote Sensing 2

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* Nefertiti
Session Chair: Bolelang Hilda Sibolla, Council for Scientific and Industrial Research, South Africa
Session Chair: Albana KONA, European Commission, Italy

Time series InSAR analysis for slope stability monitoring using Sentinel-1 in open pit mining.

Shelley Haupt^{1,2}, **Bolelang Sibolla**¹, **Lizwe Wandile Mdakane**¹

¹Council for Scientific and Industrial Research, South Africa; ²Stellenbosch University

Open Science Catalogue

Fabian Schindler-Strauss¹, **Stephan Meissl**¹, **Silvester Pari**¹, **Garin Smith**², **Ewelina Dobrowolska**³, **Anca Anghel**⁴

¹EOX IT Services GmbH, Austria; ²Telespazio UK; ³Serco; ⁴European Space Agency (ESA)

SUITABILITY AND CHALLENGES OF OPEN MAPS FOR EUROPE DATA FOR CREATING A GENERAL-PURPOSE SMALL-SCALE MAP OF CROATIA

Ana Kuvezdic Divjak, **Marina Vilicic**, **Karlo Kevic**, **Valentina Hlatki**

University of Zagreb, Faculty of Geodesy, Croatia

3DS - 4: 3D Sensing for Smart Cities 4

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* Blue Nile
Session Chair: Weiquan Liu, Xiamen University, China, People's Republic of

A Comparison Study on Deep Learning Models for Building Rooftop Classification

Angel Spasov¹, Dessislava Petrova-Antonova^{1,2}, Emil Hristov¹

¹GATE Institute, Sofia University "St. Kliment Ohridski", Bulgaria; ²FMI, Sofia University "St. Kliment Ohridski", Bulgaria

3D HIGHWAY CURVE RECONSTRUCTION FROM MOBILE LASER SCANNING POINT CLOUDS THROUGH DEEP REINFORCEMENT LEARNING

Yuanyuan Wei¹, Zongliang Zhang¹, Xingwang Huang¹, Yangbin Lin¹, Weiquan Liu²

¹Jimei University, China, People's Republic of; ²Xiamen University, China, People's Republic of

DeepUrbanModeller (DUM): A Process-Informed Neural Architecture for High-Precision Urban Surface Temperature Prediction

zang yu¹, chen linwei¹, wu donghang¹, wang cheng¹, li jun²

¹Xiamen university, China, People's Republic of; ²University of Waterloo, Waterloo, ON, Canada

DefDilUnet: A Semantic Segmentation-Based Approach for Occlusion Removal in UAV-based 3D Reconstruction of Traffic Scenes

Zhenhan Wu^{1,2}, Weixi Wang^{1,2}, Siqi Du^{1,2}, Linfu Xie^{1,2}, ShengJun Tang^{1,2}, XiaoMing Li^{1,2}, RenZhong Guo^{1,2}

¹School of Architecture and Urban Planning, Research Institute for Smart Cities, Shenzhen University, Shenzhen, P.R. China;

²School of Architecture and Urban Planning, Research Institute for Smart Cities, Shenzhen University, Shenzhen, P.R. China

4-Precision GNSS 4: Precision GNSS 4

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* Babylon

Session Chair: Yang Gao, University of Calgary, Canada

Session Chair: Moustafa Baraka, German University in Cairo (GUC), Egypt

STATE ESTIMATION IN MULTI-SENSOR FUSION NAVIGATION: EQUIVALENCE ANALYSIS ON FILTERING AND OPTIMIZATION

Zhuo Xu¹, Feng Zhu¹, Xiaohong Zhang²

¹School of Geodesy and Geomatics, Wuhan University, China, People's Republic of; ²Chinese Antarctic Center of Surveying and Mapping, Wuhan University, China, People's Republic of

BENCHMARKING COLLABORATIVE POSITIONING AND NAVIGATION BETWEEN GROUND AND UAS PLATFORMS

Andrea Masiero¹, Luca Morelli^{2,3}, Charles Toth⁴, Fabio Remondino²

¹University of Florence, Florence, Italy; ²3D Optical Metrology (3DOM) unit, Bruno Kessler Foundation (FBK), Trento, Italy; ³Dept. of Civil, Environmental and Mechanical Engineering (DICAM), University of Trento, Italy; ⁴The Ohio State University, Columbus, Ohio, USA

THE TOA ESTIMATION OF CELLULAR NETWORK SIGNALS BASED ON MACHINE LEARNING IN COMPLEX URBAN ENVIRONMENTS

Zhaoliang Liu, Liang Chen, Zhenhang Jiao, Xiangcheng Lu, Yanlin Ruan

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, Hubei Province, China

User implementation and assessment of BDS-3 Precise Point Positioning augmentation service with no economic cost

Chenhao Ouyang, Junbo Shi, Wenjie Peng, Xinying Dong, Jiming Guo, Yibin Yao
Wuhan University

Fast converging lidar-aided precise point positioning: A case study with low-cost GNSS

Junjie Zhang, Kourosh Khoshelham, Amir Khodabandeh

Department of Infrastructure Engineering, The University of Melbourne, Australia

4-Satellite Remote Sensing 4: Advancements in Remote Sensing for Climate and Environmental Monitoring (Session 2) 4

Time: Monday, 04/Sept/2023: 10:30am - 12:00pm · *Location:* White Nile

Session Chair: Francesco Pirotti, University of Padova, Italy

Session Chair: Ali Amasha, Arab Academy for Science, Technology & Maritime Transport, Egypt

Comparative Analysis of Atmospheric Temperature Profiles from Heterogeneous Data Sources: Satellite, Reanalysis Data, Numerical Weather Prediction, and Radiosonde Measurements

Daehyeon Han, Sihun Jung, Minki Choo, Juhyun Lee, Dongjin Cho, Jungho Im

Ulsan National Institute of Science and Engineering, Korea, Republic of (South Korea)

DEVELOPMENT OF CLOUD DETECTION METHOD FOR CAS500-1 IMAGERY

Won-Woo Seo¹, Wan-Sang Yoon¹, Hongki Kang¹, Pyung-Chae Lim¹, Taejung Kim²

¹3D Labs Co. Ltd, Korea, Republic of (South Korea); ²Inha University, Republic of (South Korea)

Changing climate in the Polar Regions from Microwave and Infrared Data

Josefino Cacas Comiso

NASA Goddard Space Flight Center, United States of America

A NEW WEATHER FILTER FOR REDUCING WEATHER EFFECT IN CALCULATING SEA ICE CONCENTRATION FROM AMSR2 DATA

Kohei Cho, Kazuhiro Naoki

Tokai University, Japan

1-UAV-based mapping 1: Data Acquisition, Georeferencing, and Mapping (1)

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Blue Nile
Session Chair: Ayman Habib, Purdue University, United States of America

UAV Large Oblique Image Geo-Localization Using Satellite Images In The Dense Buildings Area

Junqi Luo¹, Qin Ye^{1,2}

¹College of Surveying and Geo-Informatics, Tongji University, 200092, Shanghai, China; ²State Key Laboratory of Geographic Information Engineering, 710054, Xi'an, Shaanxi, China

Real-Time UAV 3D Image Point Clouds Mapping

Shangzhe Sun^{1,2,3}, Chi Chen^{1,2,3}, Zhiye Wang^{1,2,3}, Jian Zhou¹, Liuchun Li⁴, Bisheng Yang^{1,2,3}, Yangzi Cong^{1,2,3}, Haoyu Wang^{1,2,3}

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China;
²Engineering Research Centre for Spatio-Temporal Data Acquisition and Smart Application(STSA), Ministry of Education in China, Wuhan, China; ³Institute of Artificial Intelligence in Geomatics, Wuhan University, Wuhan, China; ⁴Institute of Artificial Intelligence, School of Computer Science, Wuhan University, Wuhan, China

DENSE POINT CLOUD EXTRACTION FROM UAV IMAGERY USING PARALLAX ATTENTION

John Ray Bergado, Francesco Nex

University of Twente, Netherlands, The

EFFICIENT UAV FLIGHT PLANNING FOR LOD2 CITY MODEL IMPROVEMENT

Yu-Lun Wu, Bashar Alsadik, Sander Oude Elberink, George Vosselman

University of Twente - ITC, Netherlands, The

3-Crowdsourcing 3: Crowdsourcing for Global Mapping (Crowdsourcing for Urban Spatial Analysis)3

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Morgana
Session Chair: Hongchao Fan, Norwegian University of Science and Technology, Norway

SPATIAL PATTERN SENSING OF GEOGRAPHICAL ELEMENTS FOR URBAN FUNCTIONAL ZONES RECOGNITION

Zhuotong Du¹, Haigang Sui¹, Qiming Zhou², Li Hua³, Liang Ge⁴

¹The State Key Laboratory of Information Engineering in Surveying Mapping and Remote Sensing, Wuhan University, Wuhan, PR China; ²Dept. of Geography, Hong Kong Baptist University, Hong Kong, PR China; ³College of Resources and Environment, Huazhong Agricultural University, Wuhan, PR China; ⁴Tianjin Institute of Surveying and Mapping Company Limited, Tianjin PR China

Crowdsourcing apps and the postdigital politics of affective spaces and surveillance

Rania Fawzy

Arab Academy for Science, Technology & Maritime Transport, Egypt

Towards Large-scale Building Attribute Mapping using Crowdsourced Images: Scene Text Recognition on Flickr and Problems to be Solved

Yao Sun¹, Anna Kruspe², Liqiu Meng³, Yifan Tian¹, Eike Hoffmann¹, Stefan Auer⁴, Xiao Xiang Zhu¹

¹Data Science in Earth Observation, Technical University of Munich, Germany; ²Technische Hochschule Nürnberg, Germany;

³Cartography and Visual Analytics, Technical University of Munich, Germany; ⁴Remote Sensing Technology Institute, German Aerospace Center, Germany

3-Digital Construction 3: BIM application 3

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall2

Session Chair: Kourosh Khoshelham, University of Melbourne, Australia

ENTROPY-BASED INDOOR CHANGE DETECTION USING LIDAR DATA AND A 3D MODEL

Hang Zhao, Martin Tomko, Kourosh Khoshelham

The University of Melbourne, Australia

Suitability Assessment of Different Sensors to Detect Hidden Installations for As-built BIM

Julius Knechtel¹, Jan Behmann¹, Jan-Henrik Haunert¹, Youness Dehbi^{1,2}

¹Institute of Geodesy and Geoinformation, Geoinformation Group, University of Bonn; ²Computational Methods Lab, HafenCity University Hamburg

Continuous BIM Alignment for Mixed Reality Visualisation

Marko Radanovic^{1,2}, Kourosh Khoshelham^{1,2}, Clive Fraser², Debaditya Acharya³

¹Building 4.0 CRC, Caulfield East, Victoria 3145, Australia; ²Department of Infrastructure Engineering, The University of Melbourne, Parkville, Victoria 3010, Australia; ³Geospatial Science, RMIT University, Melbourne, Victoria 3000, Australia

CONSTRUCTION AND APPLICATION OF THE GEOTECHNICAL AND GEOLOGICAL SPATIOTEMPORAL BIG DATA PLATFORM IN XIONGAN NEW AREA

Xi Zhang¹, Xue Gong², Yanan Du², Tao Dong³, Qian Wang⁴, Binbin Li², Xiaoran Yan²

¹Planning Research Center of Xiongan New Area; ²Xiongan Urban Planning and Design Institute Co., Ltd; ³Xiongan New Area Natural Resources and Planning Bureau; ⁴Institute of Hydrogeology and Environmental Geology, Chinese Academy of Geological Sciences

3-Geospatial Data Analytics 3: Disaster management and Agriculture 3

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall1

Session Chair: Muralikrishna Iyyanki Venkata, JNT University, India

Session Chair: Laurent Polidori, UFPA, Brazil

Saving Lives from Above: Person Detection in Disaster Response Using Deep Neural Networks

Reza Bahmanyar, Nina Merkle

German Aerospace Center (DLR), Germany

CO-SEISMIC LANDSLIDE BASED VALIDATION OF SUSCEPTIBILITY MAPPING AFTER KAHRAMANMARAS EARTHQUAKES (FEB 6, 2023) IN AMANOS MOUNTAINS

Gizem Karakas^{1,2}, Erdinc Orsan Unal^{1,2}, Nazli Tunar Ozcan³, Sinem Cetinkaya^{1,2}, Recep Can^{1,2}, Candan Gokceoglu³, Sultan Kocaman²

¹Hacettepe University, Graduate School of Science and Engineering, Ankara, Türkiye; ²Hacettepe University, Department of Geomatics Engineering, Ankara, Türkiye; ³Hacettepe University, Department of Geological Engineering, Ankara, Türkiye

Dynamics of changes of irrigated croplands in the State of Guanajuato, Mexico

Azucena Pérez-Vega¹, Yann René Ramos¹, José Miguel Soria¹, Jean Francois Mas²

¹Universidad de Guanajuato, Mexico; ²Centro de Investigaciones en Geografía ambiental

USING GEO-SPATIAL DATA AND DATASET FOR CROPLAND MONITORING IN DARKHAN-UUL AND SELENGE PROVINCES, MONGOLIA

Ochirkhuyag Lkhamjav^{1,2}, Uyanga Batbold^{1,2}, Bilguun Ulziibat¹, Uuriintsolmon Enkhtaivan¹, Ariunbold Erdenebileg¹, Khaluanbek A¹, Delgertsetseg Renchimyadag^{1,2}, Solongo Tsogtbaatar^{1,2}

¹Institute of Geography and Geoecology, MAS, Mongolia; ²Mongolian Geospatial Association

RESULTS OF USING SPECTRORADIOMETERS FOR IN SOIL MOISTURE OF MONGOLIAN STEPPE ECOSYSTEM

Nandinbayar Batsaikhan^{1,3}, Ochirkhuyag Lkhamjav^{2,3}, Munkhzul Chimid-Ochir³, Mukhtsetseg Togtokh¹, Ganzorig Ulgiichimeg²

¹Mongolian University of Life Sciences; ²Institute of Geography and Geoecology, Mongolian Academy of Sciences; ³Mongolian Geospatial Association

3-Mobile Mapping Technologies 3: Mobile Mapping Technologies and HD Maps 3

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall5
Session Chair: Meng-Lun Tsai, National Cheng Kung University, Taiwan
Session Chair: Chenglu Wen, Xiamen University, China, People's Republic of

MFSCNN: APPENDING A MASKED BRANCH TO FAST-SCNN TO IMPROVE ROAD MARKING EXTRACTION ON SPARSE MLS POINT CLOUD-DERIVED IMAGES

Miguel Luis Lagahit^{1,2}, Masashi Matsuoka^{1,2}

¹Department of Architecture and Building Engineering, Tokyo Institute of Technology, Japan; ²Tokyo Tech Academy for Super Smart Society, Tokyo Institute of Technology, Japan

An Evaluation of Solid-State LiDAR for Localization and HD point cloud mapping

Yang-En Lu¹, Kai-Wei Chiang¹, Meng-Lun Tsai², Yu-Ting Chiu², Surachet Srinara¹, Ting-Chun Wu², Naser El-Sheimy³

¹National Cheng Kung University, Taiwan; ²High Definition Map Research Center, Taiwan; ³Department of Geomatics Engineering, The University of Calgary

Evaluating Navigation Performance of Elastically Constructed HD Map with Multi-Sensor Fusion Engine System

Yu-Ting Chiu¹, Srinara Surachet¹, Meng-Lun Tsai¹, Jou-An Chen¹, Kai-Wei Chiang¹, El-Sheimy Naser²

¹National Cheng Kung University, Taiwan; ²University of Calgary, Canada

TOWARDS EFFICIENT HD MAP CREATION: A SEMI-AUTOMATED APPROACH USING THE ASSURE MAPPING TOOL WITH DEEP LEARNING AND POINT CLOUD GEOMETRICS

YI-FENG CHANG¹, KAI-WEI CHIANG¹, MENG-LUN TSAI¹, PEI-LING LEE¹, YU-TING CHIU¹, CHIH-YUN HSIEH¹, HATEM DARWEESH², NASER EL-SHEIMY³

¹National Cheng Kung University, Taiwan; ²Nagoya University, Japan; ³University of Calgary, Canada

3-SARcon 2023 3: SARcon 2023 3

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Nefertiti
Session Chair: Junichi Susaki, Kyoto University, Japan

MODELING LAND DEFORMATIONS IN MOUNTAINS BY COMBINING TIME-SERIES L-BAND SAR IMAGES AND SPATIOTEMPORAL STATISTICAL MODELS

Junichi Susaki¹, Ryo Kakinami²

¹Kyoto University, Japan; ²Central Japan Railway Company, Japan

Deformation monitoring and sensitivity analysis of under-construction bridges considering PS optimization

Zidong Xu, Xuedong Zhang, Haoyun Xie, Bo Chen, Zhaowen Li

Beijing University of Civil Engineering and Architecture, China, people's Republic of the

SURFACE DISPLACEMENT MONITORING OF SUBURBAN EXPRESSWAY UNDER CONSTRUCTION BASED ON SENTINEL-1 SBAS-INSAR ANALYSIS

Xiaogiong Qin¹, Yuanjun Huang¹, Xuguo Shi², Linfu Xie³, Xiangsheng Chen¹

¹School of Civil and Traffic Engineering & Underground Polis Academy, Shenzhen University, Shenzhen, 518060, China; ²School of Geography and Information Engineering, China University of Geosciences, 430074, China; ³Smart City Research Institute & School of Architecture and Urban Planning, Shenzhen University, 518060, China

Surface deformation monitoring in Shiyan based on multi-temporal InSAR technology

zilin zhu¹, lei chen¹, lv zhou², yonggui zhou¹, zhongliang zhu¹, jiahao li³, jiaqi luo¹, shenke xiao¹, qian gao¹

¹PIESAT Information Technology Co., Ltd., BeiJing, China; ²College of Surveying, Mapping and Geographic Information, Guilin University of Technology, Guilin, China; ³Institute of Geospatial Information, Information Engineering University, Zhengzhou, China

5-Precision GNSS 5: Precision GNSS 5

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Babylon
Session Chair: Jinling Wang, University of New South Wales, Australia

Some remarks on integrity monitoring for satellite positioning and navigation: Conceptual developments and challenging Issues

Jinling Wang

University of New South Wales, Australia

Dynamical Variational Autoencoders : A New Approach to Robust High-Precision Navigation

Dan Shen, YueXin Ma, Gelu Liu, Jiaocheng Hu, Qizhen Weng, Xiangwei Zhu

Sun Yat-sen University, China, People's Republic of China

IMPROVING GNSS POSITIONING RELIABILITY AND ACCURACY BASED ON FACTOR GRAPH OPTIMIZATION IN URBAN ENVIRONMENT

Yuantai Zhang¹, Feng Zhu¹, Xiaohong Zhang²

¹School of Geodesy and Geomatics, Wuhan University, Wuhan 430079, China; ²Chinese Antarctic Center of Surveying and Mapping, Wuhan University, Wuhan 430079, China

Indoor/outdoor Seamless Positioning Fusing with Visible Light Positioning, GNSS RTK, and INS

Xiao Sun¹, Yuan Zhuang^{1,2,3}

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China;

²Hubei LuoJia Laboratory, Wuhan, China; ³Wuhan University Shenzhen Research Institute, Shenzhen, China

A novel GPS fault detection and exclusion algorithm aided by IMU and VO data for vehicle integrated navigation in urban environments

yuanyuan wang, rui sun

Nanjing University of Aeronautics and Astronautics, China, People's Republic of

5-Satellite Remote Sensing 5: Satellite Remote Sensing for Natural Disaster Monitoring and Risk Assessment 5

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* White Nile

Session Chair: Shabnam Jabari, University of New Brunswick, Canada

DEFORMATION MONITORING AND TIME-SERIES ANALYSIS USING SENTINEL-1 DATA OF ZONARY GAS PIPELINE

Wang xiaoqing, ZHANG Peng, WU Junli, LI Zhicai, TANG Wei, SUN Zanyi
National Geomatics Center of China, China, People's Republic of

DEVELOPING A MULTI-VARIABLE FOREST FIRE RISK MODEL AND FIRE RISK ZONE MAPPING

Tsolmon Altanchimeg², Bayanmunkh Norovsuren¹, Zaya Mart¹, Enkhjargal Natsagdorj¹

¹Youth are green future association of Mongolia, Ulaanbaatar, Mongolia; ²Institute of Geography and Geoecology, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia

A PRELIMINARY COMPARISON OF TWO EXCLUSION MAPS FOR LARGE-SCALE FLOOD MAPPING USING SENTINEL-1 DATA

Jie Zhao¹, Florian Roth², Bernhard Bauer-Marschallinger², Wolfgang Wagner², Marco Chini³, Xiao Xiang Zhu¹

¹Chair of Data Science in Earth Observation, Technical University of Munich, Arcisstraße 21, Munich 80333, Germany; ²Department of Geodesy and Geoinformation, TU Wien, Wiedner Hauptstr 8, Vienna A-1040, Austria; ³Department of Environmental Research and Innovation, Luxembourg Institute of Science and Technology, 5 Avenue des Hauts-Fourneaux, Esch-sur-Alzette 4362, Luxembourg

Associate Professor

Noha Sayed¹, Hanan Ali Farag², Aly El Bahrawy³, Noha Donia⁴

¹National Water Research Center; ²National Water Research Center, Egypt; ³Faculty of Engineering, Ain Shams University;

⁴Faculty of Graduate Studies and Environmental Research, Ain Shams University

FLOOD MAPPING IN MOUNTAINOUS AREAS USING SENTINEL-1 & 2 DATA AND GLCM FEATURES

Beste Tavus^{1,2}, Sultan Kocaman²

¹Hacettepe University, Graduate School of Science and Engineering, Ankara, Türkiye; ²Hacettepe University, Department of Geomatics Engineering, 06800 Beytepe Ankara, Türkiye

ADP - 1: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 1

Time: Monday, 04/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall3

Session Chair: Martin Breunig, Karlsruhe Institute of Technology, Germany

TOPOLOGY MODELS AND RULES: A 3D SPATIAL DATABASE APPROACH

Syahiirah Salleh, Uznir Ujang, Suhaibah Azri

3DGIS Lab, Dept. of Geoinformation, Fac. of Built Environment and Surveying, Universiti Teknologi Malaysia (UTM), Malaysia

Research on Geographic Information Data Circulation Supports the Construction of Digital China

Heng Li^{1,2,3}, Wei Huang¹, Wenhao Zhao¹, Xinyan Zheng¹

¹National Geomatics Center of China, China, People's Republic of; ²Institute of Information Engineering, Chinese Academy of Sciences; ³School of Cyber Security, University of Chinese Academy of Sciences

IMPROVING DATA QUALITY AND MANAGEMENT FOR REMOTE SENSING ANALYSIS: USE-CASES AND EMERGING RESEARCH QUESTIONS

Martin Breunig¹, Paul Kuper¹, Friederike Reitze¹, Steven Landgraf¹, Mulhim Al-Doori², Emmanuel Stefanakis³, Hussein Abdulmuttalib⁴, Zsófia Kugler⁵

¹Karlsruhe Institute of Technology, Germany; ²Roads and Transport Authority, Dubai, United Arab Emirates; ³University of Calgary, Canada; ⁴GIS Department, Dubai Municipality, United Arab Emirates; ⁵Budapest University of Technology and Economics, Hungary

POTENTIAL OF MULTISPECTRAL IMAGES TAKEN BY SENSORS EMBEDDED IN UAVS FOR MONITORING THE COFFEE CROP IRRIGATION

Vinicius Silva Werneck Orlando¹, George Deroco Martins², Eusimio Felisbino Fraga Júnior², Aline Barrocá Marra¹, Fernando Vasconcelos Pereira¹, Maria de Lourdes Bueno Trindade Galo¹

¹São Paulo State University, Brazil; ²Federal University of Uberlândia, Brazil

RESEARCH ON EFFICIENT INDEXING OF LARGE-SCALE GEOSPATIAL DATA BASED ON MULTI-LEVEL GEOGRAPHIC GRID

Yin Gao¹, Hairui Duo², Jian Che¹, Shiquan Zhao¹, Bianli Zhao¹

¹National Geomatics Center of China, 100830, Beijing, China; ²Qinghai Normal University, 810016, Xining, China

2-ISSDQ2023 2: ISSDQ2023 2

Time: Monday, 04/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall2
Session Chair: Nicholas HAMM, University of Nottingham, China, People's Republic of

Using Living Atlas Raster Layers and Tools in Imagery Analysis Workflows

Mamdouh Mohamed Ali
ESRI North Africa, Egypt

Comparison of two data fusion approaches for land use classification

Martin Cubaud, Arnaud Le Bris, Laurence Jolivet, Ana-Maria Olteanu-Raimond
LASTIG, Univ Gustave Eiffel, IGN-ENSG, Saint-Mande, France

TEHRAN AIR POLLUTION MODELING USING LONG-SHORT TERM MEMORY ALGORITHM: AN UNCERTAINTY ANALYSIS

Mohamad Reza Ghorbani¹, Mahmoud Reza Delavar¹, Borzoo Nazari¹, Gholam Reza Shiran², Saman Ghaffarian³
¹University of Tehran, Iran, Islamic Republic of; ²University of Isfahan, Iran, Islamic Republic of; ³University College London, England

ANALYSIS OF THE SPATIOTEMPORAL HETEROGENEITY OF DRIVERS ON PROVINCE-LEVEL SYNERGY OF AIR POLLUTION CONTROL AND CARBON MITIGATION IN CHINA

Man Guo¹, Nicholas Hamm¹, Baozhang Chen²
¹School of Geographical Sciences, Faculty of Science and Engineering, University of Nottingham Ningbo China; ²State Key Laboratory of Resources and Environment Information System, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China

2-UAV-based mapping 2: Data Acquisition, Georeferencing, and Mapping (2)

Time: Monday, 04/Sept/2023: 3:30pm - 5:00pm · *Location:* Blue Nile

Session Chair: Mohamed Mostafa, Trimble, Canada

Swarm Unmanned aerial vehicles (UAVs)-based Fog Computing Platform Supporting Internet of Things Applications

Osama Hesham ElSayed, Sherine Moustafa Youssef, Ossama Mohamed Ismail

Arab Academy for science, Technology and Maritime Transport, Egypt

High dynamic range image compression on commodity hardware for real-time mapping applications

Dirk Frommholz, Marius Bock, Daniel Hein

DLR, Germany

UAV-BASED MAPPING WITH IMAGING AND LIDAR SYSTEMS: AIRBORNE PHOTOGRAMMETRY AND LIDAR APPLIED TO THE MAPPING OF KAPAYUWANAN, ABORIGINAL PAIWAN SETTLEMENTS, TAIWAN

April Hueimin Lu

National Pingtung University of Science and Technology/Old Architecture Rescue Center, Taiwan

Assessing the accuracy of UAV aerial surveys

AHMED ELAKSHER¹, David Sanjenis², Jose Velasco², Mark Lao²

¹New Mexico State University, Las Cruces, New Mexico, United States of America; ²Cal Poly Pomona University, Pomona, California

4-Geospatial Data Analytics 4: Water and Environmental Management 4

Time: Monday, 04/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall1

Session Chair: Laurent Polidori, UFPA, Brazil

Session Chair: Seema Jalan, Mohanlal Sukhadia University, Udaipur, Rajasthan, India

MANILA BAY WATERSHED SCORECARD: A GIS-BASED QUANTITATIVE WATERSHED HEALTH ASSESSMENT

Ma. Bea Angela I. Zamora^{1,2}, Ariel C. Blanco^{1,2,3}

¹Department of Geodetic Engineering, University of the Philippines Diliman; ²Training Center for Applied Geodesy and Photogrammetry, University of the Philippines Diliman; ³Space Information Infrastructure Bureau, Philippine Space Agency, Diliman, Quezon City

AN INTERACTIVE EVACUATION TOOL TO IMPROVE THE PUBLIC FLOOD PERCEPTION

Weilian Li¹, Noemie Treff¹, Friederike Amann¹, Judith Lehmen¹, Youness Dehbi², Jan-Henrik Haunert¹

¹Institute of Geodesy and Geoinformation, University of Bonn, Germany; ²Computational Methods Lab, HafenCity University Hamburg, Germany

GROUNDWATER QUALITY AND ITS IMPACT ON HUMAN HEALTH IN DUNGARPUR DISTRICT OF RAJASTHAN, INDIA

Seema Jalan¹, Devendra Singh Chouhan¹, Shailesh Chaure², Anjana Vyas³

¹Mohanlal Sukhadia University, Udaipur, Rajasthan, INDIA, India; ²Govt. Holker Science College Indore; ³L.J. School of Planning, L.J. University, Ahmedabad

DYNAMIC MONITORING OF THE CHAO LAKE DURING THE FLOOD SEASON BASED ON GAOFEN-3 SAR IMAGERY

Xi Zhang, Jinyan Sun, Dandan Dong

Anhui & Huaihe River Institute of Hydraulic Research

ASSESSMENT OF COASTAL FLOOD RISK UTILIZING GEOAI APPROACH

Tri Atmaja¹, Kiyo Kurisu¹, Kensuke Fukushi²

¹Department of Urban Engineering, Graduate School of Engineering, The University of Tokyo, Japan; ²Institute for Future Initiative (IFI) – The University of Tokyo, Japan

Preparation of displacement map using ENVISAT ASAR SLC data pair of Bam city and surroundings, Iran

Mondal Md. Surabuddin¹, Yassminh Rayan², HUSSIN Yousif³

¹Dept. of Surveying Engineering, Wollega University, Ethiopia; ²Department of Geological Sciences, University of Missouri, Columbia, MO 65211, USA; ³Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, Netherlands

4-Mobile Mapping Technologies 4: Mobile Mapping Technologies and HD Maps 4

Time: Monday, 04/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall5

Session Chair: Andrea Masiero, University of Florence, Italy

Session Chair: Cheng Wang, Xiamen University, China, People's Republic of

AN APPROACH OF HIGH DEFINITION MAP INFORMATION INTERACTION

Yanjie ZHANG¹, Wei HUANG^{2,1,3}

¹Urban Mobility Institute, Tongji University, China; ²College of Surveying and Geo-Informatics, Tongji University, China;

³Department of Civil Engineering, Toronto Metropolitan University, Canada

The Development and Validation of a Tactical Grade EGI System for Land Vehicular Navigation Applications

Yen-En Huang¹, Syun Tsai¹, Hsing-Yun Liu¹, Kai-Wei Chiang¹, Meng-Lun Tsai¹, Pei-Ling Lee¹, Naser El-sheimy²

¹National Cheng Kung University, Taiwan; ²University of Calgary

A Robust Autonomous Vehicular Navigation System Using RIMU-based INS/GNSS Integrated Scheme

Kai-Wei Chiang, CHI-HSIN HUANG, Yu-Ting Chiu, Ting-Chun Wu, Syun Tsai, Kuan-Ying Lin

National Cheng Kung University, Taiwan

Strategy on High-Definition Point Cloud Map Creation for Autonomous Driving in Highway Environments

Surachet Srinara¹, Yu-Ting Chiu¹, Jou-An Chen¹, Kai-Wei Chiang¹, Meng-Lun Tsai^{1,2}, Naser El-Sheimy³

¹Dept. of Geomatics, National Cheng Kung University, Taiwan; ²High Definition Map Research Center, National Cheng Kung University, Taiwan; ³Dept. of Geomatics Engineering, University of Calgary, Canada

6-Satellite Remote Sensing 6: Remote Sensing for Vegetation and Forest Monitoring 6

Time: Monday, 04/Sept/2023: 3:30pm - 5:00pm · *Location:* White Nile
Session Chair: Nagwa El-Ashmawy, National Water Research Center, Egypt
Session Chair: Marco Scaioni, Politecnico di Milano, Italy

PHENOLOGICAL ANALYSIS OF THE WESTERN HIMALAYAN FOREST USING TEMPORAL REMOTE SENSING DATA

Prashant Singh, Sanjay Kumar Ghosh, Siddhartha Khare
IIT Roorkee, India

Deforestation detection in the amazon with sentinel-1 sar image time series

Kaan Karaman, Vivien Sainte Fare Garnot, Jan Dirk Wegner
University of Zurich, Switzerland

Mapping waterbodies and wetlands in Digital Earth Africa platform: tools and applications

Maleho Mpho Sadiki
Digital Earth Africa, South Africa

Maritime Domain Awareness in South Africa: A Multisource Approach using Remote Sensing and AIS Data

Lizwe Wandile Mdakane, Bolelang Sibolla, Shelley Haupt
Council for Scientific and Industrial Research (CSIR), South Africa

7-Satellite Remote Sensing 7: High-resolution Satellite Image Processing 7

Time: Monday, 04/Sept/2023: 3:30pm - 5:00pm · *Location:* Morgana

Session Chair: Salem Morsy, Fisheries and Marine Institute, Memorial University of Newfoundland, Canada

HIGH-RESOLUTION SATELLITE TRIFOCAL TENSOR SOLUTION

shuang yang, Hongbo Pan

a School of Geosciences and Info-Physics, Central South University, China, People's Republic of

Continuous 3D-Label Semi-Global Matching for Satellite Stereo

Sonali Patil¹, Qi Guo²

¹German Aerospace Center (DLR), Braunschweig, Germany; ²Purdue University, United States of America

PERFORMANCE ASSESMENT OF OBJECT DETECTION FROM MULTI SATELLITES AND AERIAL IMAGES.

Mahmoud abdalla Ahmed^{1,2}, Naser El sheimy¹, Henry leung¹, Ahmed M. Kamel², Adel Moussa^{1,3}

¹university of calgary, Canada; ²Military technical college; ³Port Said University

Geometric Evaluation of Gaofen-7 Stereo Data

Pablo d'Angelo, JiaoJiao Tian

German Aerospace Center, Germany

ADP - 2: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 2

Time: Monday, 04/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall3
Session Chair: Paul Vincent Kuper, Karlsruhe Institute of Technology, Germany

Development of an online portal and metadata catalogue of Earth observation data types, sources and products for human health research in exposomics

Maged N. Kamel Boulos¹, Muralikrishna V. Iyyanki², Ashraf Dewan³, Bosco Bwambale⁴, Keumseok Koh⁵

¹ISPRS WG III/9, United Kingdom; ²ISPRS WG III/9, India; ³ISPRS WG III/9, Australia; ⁴ISPRS WG III/9, Uganda; ⁵ISPRS, China

Enabling Interoperability of Urban Building Energy Data Based on OGC API Standards and CityGML City Models

Thunyathep Santhanavanich^{1,2}, Rushikesh Padsala^{1,3}, Maxim Rossknecht⁴, Sanam Dabirian³, Mostafa Saad³, Ursula Eicker⁵, Volker Coors¹

¹Stuttgart University of Applied Sciences (HFT Stuttgart), Stuttgart, Germany, Germany; ²Faculty of Environmental Sciences Technical University Dresden, Dresden, Germany; ³Department of Building, Civil and Environmental Engineering (BCEE), Concordia University, Montreal, Canada; ⁴Fraunhofer Institute for Computer Graphics Research IGD, Darmstadt, Germany; ⁵Canada Excellence Research Chair on Smart, Sustainable and Resilient Cities and Communities, Canada

A comparison of pre-processing approaches for remotely sensed time series classification based on functional analysis.

Mattia Balestra², Roberto Pierdicca¹, Lorenzo Cesaretti⁴, Giacomo Quattrini², Adriano Mancini³, Andrea Galli², Eva Savina Malinverni¹, Simona Casavecchia², Simone Pesaresi²

¹Università Politecnica delle Marche, Dipartimento di Ingegneria Civile, Edile e dell'Architettura (DICEA); ²Università Politecnica delle Marche, Dipartimento di Scienze Agrarie, Alimentari ed Ambientali (D3A); ³Università Politecnica delle Marche, Dipartimento di Ingegneria dell'Informazione (DII); ⁴Consiglio per la Ricerca in agricoltura e l'analisi dell'Economia Agraria (CREA), Centro di ricerca Foreste e Legno

Imagery in ArcGIS

Waleed Effat

Esri, United Arab Emirates

1-ISSDQ2023 1: ISSDQ2023 1

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall2
Session Chair: Mahmoud Reza Delavar, University of Tehran, Iran, Islamic Republic of

LSTM-MLP Based Uncertainty Modelling Approach for Complex Human Indoor Trajectory

Yue Yu¹, Wenzhong Shi¹, Zhewei Liu², Kexin Tang¹, Liang Chen³, Ruizhi Chen³

¹The Hong Kong Polytechnic University, Hong Kong S.A.R. (China); ²Texas A&M University; ³Wuhan University

A CRITICAL ANALYSIS OF INTERNAL RELIABILITY FOR UNCERTAINTY QUANTIFICATION OF DENSE IMAGE MATCHING IN MULTI-VIEW STEREO

Debao Huang, Rongjun Qin

The Ohio State University, United States of America

MULTI-LEVEL CITY PORTRAIT MODEL WITH MULTI-SOURCE DATA

Feifei Zhuo¹, Changfeng Jing², Gaoran Xu², Yanli Fu³

¹School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, China, People's Republic of; ²School of Information Engineering, China University of Geosciences, China, People's Republic of; ³JD Logistics, Beijing, China

GROUNDWATER LEVEL PREDICTION USING DEEP RECURRENT NEURAL NETWORKS AND UNCERTAINTY ASSESSMENT

Zahra Eghrari¹, Mahmoud Reza Delavar², Mehdi Zare³, Morteza Mousavi¹, Borzoo Nazari⁴, Saman Ghaffarian⁵

¹MSc. Student, School of Surveying and Geospatial Eng., College of Engineering, University of Tehran, Tehran, Iran; ²Center of Excellence in Geomatic Eng. in Disaster Management and Land Administration in Smart City Lab., School of Surveying and Geospatial Eng., College of Engineering, University of Tehran, Tehran, Iran; ³International Institute of Earthquake Engineering and Seismology, Tehran, Iran; ⁴GIS Dept., School of Surveying and Geospatial Eng., College of Engineering, University of Tehran, Tehran, Iran; ⁵Institute for Risk and Disaster Reduction, University College London, UK

1-Navigation, Guidance 1: Navigation, Guidance and Control of Autonomous Vehicles 1

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall5

Session Chair: Aboelmagd Noureldin, Queen's University, Canada

High-Resolution Mapping of Forested Hills Using Real-Time UAV Terrain Following

CHANDRA HAS SINGH, KAMAL JAIN, VISHAL MISHRA

Indian Institute of Technology Roorkee, India

Lidar SLAM-Aided Vehicular Navigation System for GNSS-Denied Environments

Nader Abdelaziz¹, Ahmed El-Rabbany²

¹Toronto Metropolitan University, Canada; ²Toronto Metropolitan University, Canada

HYBRID DEEP LEARNING APPROACH FOR VEHICLE'S RELATIVE ATTITUDE ESTIMATION USING MONOCULAR CAMERA

Mehad Haggag^{1,2}, Adel Moussa^{1,3}, Naser El-Sheimy¹

¹Department of Geomatics Engineering, University of Calgary, Canada.; ²Department of Geomatics Engineering, Benha University, Egypt.; ³Department of Electrical Engineering, Port-Said University, Egypt.

INVESTIGATING THE COMPLEMENTARY USE OF RADAR AND LIDAR FOR POSITIONING APPLICATIONS

Eslam Mounier^{1,2}, Emma Dawson¹, Mohamed Elhabiby³, Michael Korenberg¹, Aboelmagd Noureldin^{1,4}

¹Queen's University, ON, Canada; ²Ain Shams University, Cairo, Egypt; ³Micro Engineering Tech Inc., Alberta, Canada; ⁴Royal Military College, ON, Canada

DATASET AND IMPROVED YOLOV7 FOR TEXT-BASED TRAFFIC SIGN DETECTION

Xiuyuan Chi, He Huang, Junxing Yang, Junxian Zhao, Xin Zhang

Beijing University of Civil Engineering and Architecture

1-Smart Forests 1: Deep Learning for large-scale forest monitoring 1

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* Babylon
Session Chair: Xinlian Liang, Wuhan University, China, People's Republic of

A Special Deep Learning Framework and Foundation Model for Intelligent Interpretation of Remote Sensing

Jianya Gong

Wuhan University, China, People's Republic of

UPDATING ABOVEGROUND BIOMASS AT A PAN-EUROPEAN SCALE THROUGH SATELLITE DATA AND ARTIFICIAL INTELLIGENCE

Francesco Pirotti^{1,2}, José Ramón González-Olabarria^{3,4}, Erico Kutchartt¹

¹TESAF Department, University of Padova, Italy; ²CIRGEO Interdepartmental Research Center in Geomatics, University of Padova;

³Forest Science and Technology Centre of Catalonia (CTFC). Carretera de Sant Llorenç de Morunys, Km 2, 25280 Solsona

(Spain); ⁴Joint Research Unit CTFC – AGROTECNIO. Carretera de Sant Llorenç de Morunys, Km 2, 25280 Solsona (Spain)

ENHANCING THE QUALITY OF CNN-BASED BURNT AREA DETECTION IN SATELLITE IMAGERY THROUGH DATA AUGMENTATION

Viktoriia Hnatushenko^{1,3}, Volodymyr Hnatushenko², Dmytro Soldatenko¹, Christian Heipke³

¹Ukrainian State University of Science and Technologies, Germany; ²Dnipro University of Technology, Dnipro, Ukraine; ³Leibniz Universität Hannover, Hannover, Germany

Fusing Sentinel-1 and Sentinel-2 images with transformer-based network for deforestation detection in the Brazilian Amazon under diverse cloud conditions

Felipe Ferrari¹, Matheus Pinheiro Ferreira², Raul Queiroz Feitosa¹

¹Pontifical Catholic University of Rio de Janeiro, Brazil; ²Military Institute of Engineering, Brazil

3-UAV-based mapping 3: Data Acquisition, Georeferencing, and Mapping (3)

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* Blue Nile
Session Chair: Ayman Habib, Purdue University, United States of America

SEMANTIC SEGMENTATION OF UAV LIDAR DATA FOR TREE PLANTATIONS

Jinyuan Shao, Ayman Habib, Songlin Fei
Purdue University, United States of America

UAV-LIDAR BORESIGHT ESTIMATION USING VIRTUAL CONTROL POINTS: A CASE STUDY

Marcela do Vale Machado, Antonio Maria Garcia Tommaselli
Unesp - São Paulo State University, Brazil

Best Practice for Surveying by Drones

Mohamed Mostafa
Trimble, Canada

FUSION OF DIRECT GEOREFERENCED AERIAL DRONE WITH TERRESTRIAL LASER SCANNER DATA

Giorgos Kafataris, Dimitrios Skarlatos, Marinos Vlachos
Cyprus University of Technology, Cyprus

4-SARcon 2023 4: SARcon 2023 4

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* Morgana

Session Chair: Tamer ElGharbawi, Suez Canal University, Egypt

URBAN 3D RECONSTRUCTION OF VHR SAR IMAGES USING ITERATIVE OPTIMIZATION ALGORITHM AND LAYOVER FIXED-ORDER MODEL

Chonghui Zhang, Lei Pang, DaYuan Liu

Beijing University Of Civil Engineering And Architecture, China, People's Republic of

Lu Tan-1 SAR Satellite Characteristics and Productions in the Phase of In-Orbit Test

Tao Li¹, Xinming Tang¹, Xiaoming Gao¹, Xiang Zhang¹, Xuefei Zhang¹, Jing Lu¹, Tao Chen², Xiaohong Qiao³, Jing Han⁴, Zheng Li⁵

¹Land Satellite Remote Sensing Application Center, MNR, China; ²Surveying and mapping data archives of Guizhou Province;

³Yunan Remote Sensing Center; ⁴Shaanxi Satellite Application Center for Natural Resources; ⁵Geological Technical Information Center of Yunnan Province

PDCA-FORMER: PRIOR-DIAGONAL CROSS ATTENTION-GUIDED TRANSFORMER FOR FLOOD MAPPING FROM SAR IMAGERY: A CASE IN KHARTOUM

Tamer Saleh^{1,2}, Mohamed Zahran², Shimaa Holail¹, Gui-Song Xia³

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, China; ²Geomatics Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt; ³National Engineering Research Center for Multi-media Software, School of Computer Science and Institute of Artificial Intelligence, Wuhan University, China

Ship Detection in COSMO-SkyMed SAR Imagery Using a Novel CNN-based Detector: A Case Study from the Suez Canal

Tamer Saleh^{1,2}, Shimaa Holail¹, Xingxing Weng³, Xiongwu Xiao¹, Gui-Song Xia^{1,3,4}

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, China; ²Geomatics Engineering Department, Faculty of Engineering at Shoubra, Benha University, Egypt; ³School of Computer Science, Wuhan University, China; ⁴National Engineering Research Center for Multi-media Software, School of Computer Science and Institute of Artificial Intelligence, Wuhan University

5-Geospatial Data Analytics 5: Land and Environmental Management 5

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall1

Session Chair: Muralikrishna Iyyanki Venkata, JNT University, India

Session Chair: Laurent Polidori, UFPA, Brazil

INFLUENCE OF DIFFERENT WIND ANGLES ON PEDESTRIAN WIND COMFORT IN 3D SPACE

Nurfairunnajiha Ridzuan, Uznir Ujang, Tan Liat Choon, Suhaibah Azri

3D GIS Research Lab, Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia

CONTENT PLANNING AND STRUCTURE DESIGN OF GLOBAL LAND COVER KNOWLEDGE ATLAS

Xiuli ZHU^{1,2}, Lijun CHEN¹, Yong ZHAO¹, Wanzeng LIU^{1,2}, Yunlu PENG¹, Ran LI^{1,2}, Xi ZHAI^{1,2}, Hong XU³

¹National Geomatics Center of China, China, People's Republic of; ²Key Laboratory of Spatio-temporal Information and Intelligent Services, MNR; ³High-Tech Research & Development Center of the Ministry of Science & Technology, P.R.C.

Modelling and mapping of differentiation in soil material redistribution in the arable areas

Lubov Trofimetz¹, Evgeny Panidi²

¹Orel State University, Orel, Russia; ²Saint Petersburg State University, Russian Federation

The Outcomes of Applying Smart Green Port Concept in Egyptian Ports (CASE STUDY: ALEXANDRIA PORT)

Mohamed Elhussieny, Ola Arafat, Ahmed El Kassar

Arab Academy for Science, Technology & Maritime Transport, Egypt

ASSESSING THE RELATION BETWEEN LAND USE / LAND COVER CHANGES AND ENVIRONMENTAL PARAMETERS FOR CHENNAI CITY, TAMIL NADU : A REMOTE SENSING AND GIS APPROACH

MuraliKrishna Iyyanki¹, Satya Sahithi Veeramallu²

¹Defence Research & Development Organization(DRDO), Hyderabad, Telangana,India; ²Jawaharlal Nehru Technological University, Hyderabad, Telangana

8-Satellite Remote Sensing 8: Hyperspectral Image Processing and Uncertainty Modeling 8

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* White Nile
Session Chair: Bahram Salehi, SUNY ESF, United States of America

UNCERTAINTY MODELING AND ANALYSIS OF SPACEBORNE INFRARED HYPERSPECTRAL IMAGES OVER RUGGED LAND SURFACE

Xianfei Qiu¹, Zhen Li¹, Shaocong Liu¹, Tinghao Liu¹, Guorui Jia²

¹Institute of Remote Sensing Satellite, China Academy of Space Technology, Beijing 100094, China; ²School of Instrumentation and Optoelectronic Engineering, Beihang University, Beijing 100191, China

ESTIMATION OF MANGROVE FRACTIONAL COVER FROM MULTISPECTRAL AND HYPERSPECTRAL DATA USING MIXTURE TUNED MATCHED FILTERING

Ariel Conferido Blanco^{1,2,3}, Cristian Perez^{1,2}

¹Philippine Space Agency - Space Information Infrastructure Bureau; ²Department of Geodetic Engineering, University of the Philippines Diliman; ³Training Center for Applied Geodesy and Photogrammetry, University of the Philippines Diliman

A Method of Reordering Lossless Compression of Hyperspectral Images

Xiaoming Gao¹, Lei Wang², Tao Li¹, Junfeng Xie¹

¹Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of the People's Republic of China; ²School of Geomatics, Liaoning Technical University, Liaoning

UNDERSTANDING THE IMPACTS OF CROP DIVERSIFICATION IN THE CONTEXT OF CLIMATE CHANGE: A MACHINE LEARNING APPROACH

Georgios Giannarakis¹, Ilias Tsoumas^{1,4}, Stelios Neophytides², Christiana Papoutsas², Charalampos Kontoes¹, Diofantos Hadjimitsis^{2,3}

¹BEYOND Centre, IAASARS, National Observatory of Athens, Greece; ²ERATOSTHENES Centre of Excellence, Cyprus; ³Cyprus University of Technology, Cyprus; ⁴Wageningen University & Research, The Netherlands

GIS INTEGRATION OF LAND COVER WITH NIGHT-TIME LIGHTS FOR SPATIOTEMPORAL EVALUATION OF URBAN EXPANSION

Srashti Singh¹, Kamal Jain¹, Anugya Shukla²

¹Indian Institute of Technology Roorkee, India; ²Tata Institute of Social Sciences, Mumbai, India.

ADP - 3: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 3

Time: Tuesday, 05/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall3
Session Chair: Árpád Barsi, Budapest University of Technology and Economics, Hungary

Semantic knowledge embedding deep learning network for land cover classification

jiage chen¹, xiao du¹, junhui zhang¹, yongtao wan¹, wenzhi zhao²

¹National Geomatics Center of China, China, People's Republic of; ²Beijing Normal University

Study on the historical changes in the central axis of Beijing based on modern technology

Zhiheng He¹, Keliang Ding¹, Xuewei Zhang¹, Xi Zhang¹, Pu Zhang²

¹School of Geomatics and Urban Spatial Information, Beijing University of Civil Engineering and Architecture, Beijing, 102616;

²Beijing Institute of Geo-Engineering, Beijing, 100048

A Shallow Neural Network Model for Urban Land Cover Classification Using VHR Satellite Image Features

Mohamed Fawzy^{1,3}, György Szabó², Barsi Arpad¹

¹Department of Photogrammetry and Geoinformatics, Faculty of Civil Engineering, Budapest University of Technology and Economics, 3 Műegyetem rkp., K Building First Floor 31., H-1111 Budapest, Hungary.; ²Institute of Mathematics and Informatics, University of Nyíregyháza, Sóstói út 31/b A ép.112, H-4400, Nyíregyháza, Hungary.; ³Civil Eng. Dept., Faculty of Engineering, South Valley University, Qena, Egypt.

IMPROVING THE ACCURACY OF AN OIL SPILL DETECTION AND CLASSIFICATION MODEL WITH FAKE DATASETS

NGOC AN BUI, YOUNGON OH, IMPYEONG LEE

University of Seoul, Korea, Republic of (South Korea)

PS - 3: Plenary Session - 3

Time: Tuesday, 05/Sept/2023: 10:30am - 12:00pm · *Location:* Cleopatra

Session Chair: Naser El-Sheimy, University of Calgary, Canada

Session Chair: Nashwa Elbendary, Arab Academy for Science, Technology and Maritime Transport (AASTMT), Egypt

Presentation of the best paper awards of PHOTO (2022), OPHOTO (2022 and 2021) , and IJGI (2022

Nicolas PAPARODITIS

ISPRS, France

Earth Observations and Geospatial AI for Sustainable Urban Development

Qihao Weng

Hong Kong Polytechnic University, Hong Kong S.A.R. (China)

Introduction of Taiwan HD Maps

Meng-Lun Tsai

National Cheng Kung University, Taiwan

LiDAR and photogrammetry - compared and combined

Nikolai Vadimovich Poliarnyi

Agisoft LLC, Russian Federation

Location, empowered by chip-to-cloud technology

Guangyu Zhou

Beijing BDStar Navigation Co., Ltd., China, People's Republic of

Poster Session - 1: Poster Session - 1

Time: Tuesday, 05/Sept/2023: 3:30pm - 5:00pm · Location: Poster Hall

Study on Automatic Registration Method of Source Data for CIM Building Model Construction

Shuqing Ran

Beijing University Of Civil Engineering And Architecture, China, People's Republic of

I3S - an Open 3D Streaming OGC Community Standard powering Digital Twins

Tamrat Belayneh

Esri, United States of America

Exploration of the Development of Satellite Navigation System

Ming Li¹, Chen Liu², Chenyang Wang¹, Wei Wang¹

¹Surveying and Mapping Development Research Centre, Ministry of Natural Resources of PRC; ²Beijing Satellite Navigation Centre

MATCHING FILTER-BASED VSLAM OPTIMIZATION IN INDOOR ENVIRONMENTS

Shuangfeng Wei, Shangxing Wang

Beijing University of Civil Engineering and Architecture, China, People's Republic of

Indoor Positioning and Navigation Based on QR Code Map

Rongkai Liu^{1,2}, Dejin Zhang^{1,2}

¹School of Architecture and Urban Planning, Research Institute for Smart Cities, Shenzhen University, Shenzhen, P.R. China;

²Guandong Key Laboratory of Urban Informatics, Shenzhen University, Shenzhen, PR China

Modelling Evacuation Strategies under Dynamic Conditions Due to Obstacle Locations Based on a Semantic 3D Building Model

SHREYA¹, RAJAN K.S²

¹The International Institute of Information Technology - Hyderabad, India; ²The International Institute of Information Technology - Hyderabad, India

Combining BIM and OpenStreetMap to support indoor-outdoor seamless navigation

JingYu Zhu, Zhiyong Wang

School of Civil Engineering and Transportation, South China University of Technology, Guangzhou, China

Spatial Modeling for Integrated Indoor-Outdoor Navigation

Ahebieerde Ahebieerde, Zhiyong Wang

School of Civil Engineering and Transportation, South China University of Technology, GuangZhou, China

LIDSOR: A FILTER FOR REMOVING RAIN AND SNOW NOISE POINTS FROM LIDAR POINT CLOUDS IN RAINY AND SNOWY WEATHER

He Huang, Xinyuan Yan, Junxing Yang, Yuming Cao, Xin Zhang

Beijing University of Civil Engineering and Architecture, China, People's Republic of

Research on transmission channel change detection based on multi-temporal point cloud data

Wei Hu¹, Guozhu Yang¹, Ning Liu¹, Fei Liu², Chuntian Ma¹, Maojie Tian¹, Chunting Hao²

¹State Grid Electric Power Space Technology Co., Ltd., 102200, Beijing, China; ²Beijing University of Civil Engineering and Architecture, School of Geomatics and Urban Informatics, 102616, Beijing, China

INVESTIGATION OF THE RADIOMETRIC BEHAVIOUR OF A LOW-COST AUTOMOTIVE LIDAR SENSOR

Zian Zhang, Zichao Zeng, Jan Boehm

University College London, United Kingdom

HYPERSPECTRAL UAS IMAGERY FOR GRASS SWARDS BIOMASS AND NITROGEN ESTIMATION

Raquel Alves Oliveira¹, Roope Näsi¹, Panu Korhonen², Arja Mustonen², Oiva Niemeläinen², Niko Koivumäki¹, Teemu Hakala¹, Juha Suomalainen¹, Jere Kaivosoja², Eija Honkavaara¹

¹Finnish Geospatial Research Institute National Land Survey of Finland, Finland; ²Natural Resources Institute Finland (Luke), Finland

Developing a Multimodal Database of Digital Archives for Cultural Heritage Sites – A Case of Digitally Preserving the Borobudur Temple of Indonesia

Biligsaikhan Batjargal¹, Jiao Pan², Shenyu Ji³, Liang Li⁴, Hiroshi Yamaguchi⁵, Kyoko Hasegawa⁶, Takahiro Nishibayashi⁷, Akira Maeda⁸, Upik Sarjiati⁹, Fadjar I. Thufail¹⁰, Brahmantara Brahmantara¹¹, Satoshi Tanaka¹²

¹Research Organization of Science and Technology, Ritsumeikan University, Japan; ²School of Intelligence Science and Technology, University of Science and Technology Beijing, China; ³Research Organization of Science and Technology, Ritsumeikan University, Japan; ⁴College of Information Science and Engineering, Ritsumeikan University, Japan; ⁵Nara National Research Institute for Cultural Properties, Japan; ⁶Research Organization of Science and Technology, Ritsumeikan University, Japan; ⁷College of Letters, Ritsumeikan University, Japan; ⁸College of Information Science and Engineering, Ritsumeikan University, Japan; ⁹Research Center for Area Studies, National Research and Innovation Agency, Indonesia; ¹⁰Research Center for Area Studies, National Research and Innovation Agency, Indonesia; ¹¹Borobudur Conservation Office, Indonesia; ¹²College of Information Science and Engineering, Ritsumeikan University, Japan

Operation and verification procedure for HD Maps updating

Sean Lin, Kai-Wei Chiang, Chi-Kuei Wang, Chung-Yen Kuo, Pei-Ling Li, Chi-Ming Lee
National Cheng Kung University, Taiwan

Comparative Analysis of Morphological (MCSS) and Learning-based (SPG) Strategies for Detecting Signage Occlusions along Transportation Corridors

Nicole Pascucci¹, Sang Yeop Shin², Jidong Liu², Mona Hodaei², Donatella Dominici¹, Ayman Habib²

¹University of L'Aquila, Italy; ²Lyles School of Civil Engineering, Purdue University

COST-EFFICIENT METHODS OF DERIVING SLOPE INFORMATION FOR ROAD SEGMENTS IN DRIVER-ASSISTANCE APPLICATIONS

Viktor Gyzo Horvath^{1,2}, Arpad Barsi¹

¹Dept. Photogrammetry and Geoinformatics, Budapest University of Technology and Economics, Hungary; ²NNG LLC

ACTIVE POLYGON-BASED BUILDING OUTLINE EXTRACTION FROM HIGH-RESOLUTION AERIAL IMAGES

Weihsang Ran, Wei Yuan, Zipei Fan, Xiaodan Shi, Ryosuke Shibasaki
The University of Tokyo, Japan

MODEL-BASED MULTI-UAV PATH PLANNING FOR HIGH-QUALITY 3D RECONSTRUCTION OF BUILDINGS

Shuhang Zhang¹, Wuming Zhang¹, Chun Liu²

¹Sun Yat-sen University, China, People's Republic of; ²Tongji University, China, People's Republic of

Urban Building Shadow Removal by an HSV-ShadowGAN Network on Unpaired UAV Datasets.

Renzhong Guo^{1,2}, Ziru Liu¹, Weixi Wang², Linfu Xie²

¹School of Resource and Environmental Sciences, Wuhan University, Wuhan, China; ²School of Architecture and Urban Planning, Shenzhen University, Shenzhen, China

Using UAV-derived Plant Height as an Estimator for Biomass and N-uptake

Georg Bareth¹, Christoph Hütt¹, Alexander Jenal¹, Andreas Bolten¹, Hannah Firl¹, Jan Wolf¹, Hubert Hüging²

¹GIS & RS Group, Institute of Geography, University of Cologne, Germany; ²INRES, Bonn University, Germany

INTEGRATING UAV LIDAR AND MULTISPECTRAL DATA TO ASSESS WEST AFRICAN TROPICAL FOREST CONDITION AND STRUCTURE

Chima Jude Iheaturu, Vladimir Ruslan Wingate, Felicia Olufunmilayo Akinyemi, Chinwe Ifejika Speranza
University of Bern, Switzerland

OBJECT BASED APPROACH FOR IMAGE FEATURE EXTRACTION FROM UAV DATA

Surendra Kumar Sharma¹, Jayneel Shah¹, Sandeep Maithani¹, Vishal Mishra^{2,3}

¹Urban and Regional Studies Department, Indian Institute of Remote Sensing, Dehradun, India; ²Indian Institute of Technology Roorkee, Roorkee, India; ³GFZ German Research Centre for Geosciences, 14473 Potsdam, Germany

DESIGN AND IMPLEMENTATION OF GEOPARK MANAGEMENT SYATEM IN SOUTHWEST CHINA BASED ON GIS

Jianing Li¹, Yuyan Liu^{2,4,5}, Changfeng Jing³, Yunlong Feng¹

¹Beijing University of Civil Engineering and Architecture, China, People's Republic of; ²North China Institute of Aerospace Engineering, China, People's Republic of; ³China University of Geosciences, China, People's Republic of; ⁴Aerospace Remote Sensing Information Processing and Application Collaborative Innovation Center of Hebei Province, China, People's Republic of; ⁵National Joint Engineering Research Center of Space Remote Sensing Information Application Technology, China, People's Republic of

SELECTING THE BEST FITTING 'GEOSPATIAL ARTIFICIAL INTELLIGENT MODEL' FOR AUTOMATING CHANGE DETECTION AND MAPPING PRACTICES

Hussein Abdulmuttalib

Dubai Municipality, United Arab Emirates

A 3D BUILDING INDOOR-OUTDOOR BENCHMARK FOR SEMANTIC SEGMENTATION

Yuwei Cao, Marco Scaioni

Politecnico di Milano, Italy

LAND COVERAGE ANALYSIS OF PAKISTAN USING SATELLITE IMAGERY

Abdullah Sabir¹, Maryam Jameela², Asad Waqar Malik¹

¹National University of Sciences & Technology, Pakistan; ²York University, Canada

Classification of Mobile LiDAR Point Clouds by Supervised Machine Learning: Experiences with Random Forest (RF) and Light Gradient Boosting Machine (LGBM)

BARIS SULEYMANOGLU¹, YALCIN YILMAZ¹, CHARLES TOTH²

¹YILDIZ TECHNICAL UNIVERSITY, TURKEY; ²THE OHIO STATE UNIVERSITY, USA

Comparison of deep learning architectures for the semantic segmentation of slum areas from satellite images

Yustisi Ardhitasari Lumban-Gaol¹, Aldino Rizaldy², Arnadi Murtiyoso³

¹Research Organization for Earth Sciences and Maritime, National Research and Innovation Agency, Indonesia; ²Helmholtz Institute Freiberg for Resource Technology, Helmholtz-Zentrum Dresden-Rossendorf, Germany; ³Forest Resources Management Group, Institute of Terrestrial Ecosystems, Department of Environmental Systems Science, ETH Zurich, Switzerland

URBAN GREEN SPACE RESEARCH BASED ON GF-2 AND SENTINEL-2 PANCHROMATIC MULTISPECTRAL IMAGES

BuYun Kang

Beijing University of Civil Engineering and Architecture, China, People's Republic of

SuperDove-modelled bathymetry using neural networks along a turbidity gradient: Bréhat, Saint-Barthélemy and Teti'aroa islands

Antoine Collin¹, Pirta Palola², Dorothee James¹, Yves Pastol³, Coralie Monpert³, Sophie Loyer³, Benoit Stoll⁴, Eric Feunteun¹, Lisa Wedding²

¹EPHE-PSL University, France; ²University of Oxford, UK; ³Shom, France; ⁴University of French Polynesia, French Polynesia

Oil spill monitoring using satellite imagery in the Sharm El-Maya region of Sharm El-Sheikh, Egypt.

Mona Morsy^{1,2,3}

¹Gottfried Wilhelm Leibniz Universität Hannover, Institut für Photogrammetrie und GeoInformation, Nienburger Straße 1, 30167 Hannover; ²Department Monitoring and Exploration Technologies, Helmholtz Centre for Environmental Research GmbH-UFZ, Permoserstraße 15, 04318 Leipzig, Germany; ³Geology Department, Faculty of Science, Suez Canal University, Ismailia 41522, Egypt

HIGH RESOLUTION DEM GENERATION FOR THE LUNAR SOUTH POLE BASED ON THE FUSION OF STEREO PHOTOGRAMMETRY AND STEREOPHOTOCLINOMETRY

Xun Geng

Henan University, China, People's Republic of

A CORRELATION ANALYSIS OF LAND SURFACE TEMPERATURE AND EVAPOTRANSPIRATION IN AN URBAN SETTING

Srashti Singh, Sunni Kanta Prasad Kushwaha, Kamal Jain
Indian Institute of Technology Roorkee

Research on Cooperation Strategy based on Satellite Remote Sensing Data Service and Technology Application between China and ASEAN

Lina Dong¹, Shanshan Lyu¹, Lingli Wang², Xinyuan Gao¹

¹Land Satellite Remote Sensing Application Center, MNR, China, People's Republic of; ²Beijing SatImage Information Technology CO.,Ltd Beijing, China

Comparison of Extraction Accuracy of Sugarcane from Different Resolution Satellite Images Using Deeplab V3+ Mode

Xinyuan Gao, Chen Chen, Yuhang Gan, Yu Liu

Land Satellite Remote Sensing Application Center. MNR, China, People's Republic of

EXEMPLAR-BASED INPAINTING TECHNIQUES FOR THE REMOVAL OF EXCESSIVE SEGMENTATION IN STREETS FEATURES PARTIALLY DETECED FROM HIGH SPATIAL RESOLUTION ORBITAL IMAGES

Allan Alves Lopes Ferreira¹, Eduardo Soares Nascimento¹, Thamires Gil Godoy¹, Pedro Miguel Berardo Duarte Pina², Erivaldo Antonio da Silva¹

¹São Paulo State University, Brazil; ²University of Coimbra, Portugal

M-AFDE-Net: Novel Deep Learning-based Building Change Detection of Freshly Built Locales from Satellite Imagery in the Nile Valley, Egypt

Shimaa Holail¹, Tamer Saleh^{1,2}, Xiongwu Xiao¹, Zhenfeng Shao¹, Haigang Sui¹, Deren Li¹

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China;

²Geomatics Engineering Department, Faculty of Engineering at Shoubra, Benha University, Cairo, Egypt

QUALITY INSPECTION OF REMOTE SENSING FARMLAND RESOURCE MONITORING DATA ACHIEVEMENTS

Wenjuan Mao, Haitao ZHAO, Wenli Han, Hongjing Tu, Wenchao Gao

National Quality Inspection and Testing Center for Survey and Mapping Products, China, People's Republic of

Consistency checking method of surface coverage data results

Hai Li, Wenchao Gao, Chunxi Chen, Su Yin, Wenjuan Mao, Qingqing Yan, Mingying Wan, Hongjing Tu

National Quality Inspection and Testing Center for Surveying and Mapping Products, Beijing 100830, China

Virtual Reality (VR) Assisted Geomatics lab Development

Amr Abd-Elrahman, Charlotte Atwill, Deb Barry, Ali Gonzalez, Karol Hernandez, Ziad Abd-Elrahman

University of Florida, United States of America

E-TRAINEE: OPEN E-LEARNING COURSE ON TIME SERIES ANALYSIS IN REMOTE SENSING

Markéta Potůčková¹, Jana Albrechtová¹, Katharina Anders², Lucie Červená¹, Jakub Dvořák¹, Krzysztof Gryguc³, Bernhard Höfle², Zuzana Lhotáková¹, Adrinana Marcinkowska-Ochtyra³, Andreas Mayr⁴, Eva Neuwirthová¹, Adrian Ochtyra³, Martin Rutzinger⁴, Adéla Šedová¹, Alex Šrollerů¹, Lucie Kupková¹

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³University of Warsaw, Department of Geoinformatics, Cartography and Remote Sensing, Poland; ⁴University of Innsbruck, Institute of Geography, Remote Sensing & Topographic LiDAR Research Group, Austria

The Basic Problems and Countermeasures of Map Inspection

Yunlu Peng^{1,2,3}, Wanzeng Liu^{1,2,3}, Ran Li^{1,2,3}, Xiuli Zhu^{1,2,3}, Ye Zhang^{1,2,3}, Tingting Zhao^{1,2,3}, Xi Zhai^{1,2,3}, Xinpeng Wang^{1,2,3}, Xinli Di^{1,2}, Linlin Che¹

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MASK IMPORTANCE IN BURNED AREA MAPPING BASED ON REMOTE SENSING, GIS AND OPEN-SOURCE PRODUCTS

Elia Dimova Stoyanova, Silviya Lyubenova Katsarska-Filipova

University of Architecture, Civil Engineering and Geodesy (UACEG), Faculty of Geodesy, Dept. of Photogrammetry and Cartography, Sofia, Bulgaria

WAYFINDING AND AUGMENTED REALITY: APP FOR OUTDOOR EXPERIMENTS IN THE PERUGIA STATION AREA

Fabio Bianconi, Marco Filippucci, Filippo Cornacchini, Chiara Mommi
University of Perugia, Italy

HERITAGE DECAY IN HBIM MODELS

CECILIA Bolognesi, Asiia Garipova, Maria Kuznetsova
Politecnico di Milano, Italy

PHOTOGRAMMETRY IN ARCHITECTURAL EDUCATION: DEPLOYING AERIAL AND TERRESTRIAL MEANS

Stamatis Chatzistamatis, Christina Kiourti, Aristeia - Evangelia Koukounouri, Spyridoula Paxinou, Chrysi-Lida Skordili, Charalampos Louizidis, Iason Athanasiadis, Sotirios Kotsopoulos
National Technical University of Athens, Greece

Cultural Heritage Visualization and Virtual Restoration 3D Photogrammetry and 3D Scanning for Slate houses of Old Paiwan Indigenous Settlements, Taiwan

April Hueimin Lu
National Pingtung University of Science and Technology/Old Architecture Rescue Center, Taiwan

RESEARCH PROGRESS IN THE SPLICING AND RESTORATION OF ARTIFACT FRAGMENTS BASED ON POINT CLOUD

Jianghong Zhao^{1,2,3,4,5}, Lisha Yin^{1,3}, Jia Yang^{1,3}, Xinnan Hua^{1,3}, Ziling Liu^{1,3}, Xin Wang^{1,3}
¹Beijing University of Civil Engineering and Architecture, School of Geomatics and Urban Spatial Informatics, Beijing China, 102616; ²Ministry of Natural Resources, Key Laboratory for Urban Spatial Information, Beijing China, 102616; ³Beijing Key Laboratory for Architectural Heritage Fine Reconstruction & Health Monitoring, Beijing China, 102616; ⁴Wuhan University, State Key Laboratory Of Information Engineering In Surveying, Mapping And Remote Sensing, Wuhan China, 430072; ⁵Wuhan University, Key Laboratory of Digital Cartography and Land Information Application, Wuhan China, 430072

PRACTICAL EXPLORATION OF LOW-COST YET HIGHLY ACCURATE 3D MAPPING TECHNIQUES FOR DOCUMENTATION AND CONSERVATION OF AN EGYPTIAN TOMB (THEBAN TOMB 45)

Robert Voûte^{1,2}, Carina Hoven. van den^{3,4}, Hessel Prins², Bart-Peter Smit²
¹Delft, University of Technology, Department Architectural Engineering & Technology; ²CGI Nederland BV, Department of Geo-ICT; ³Leiden University, The Netherlands Institute for the Near East; ⁴Leiden University Centre for Digital Humanities

Geo-referencing Multi-resolution Digital Elevation Models Via 3D-to-2D Alignments at CE-5 Landing Site

Yuan Li
Sun Yat-Sen University, China, People's Republic of

Attention-guided cost volume refinement network for satellite stereo image matching

Wonje Jeong, Soon-Yong Park
Kyungpook National University, Korea, Republic of (South Korea)

IMAGE FEATURE EXTRACTION METHODS FOR STRUCTURE DETECTION FROM UNDERWATER IMAGERY

Peter Roberts¹, Petra Helmholtz², Iain Parnum², Aneesh Krishna¹
¹School of Electrical Engineering, Computing and Mathematical Sciences, Curtin University, Australia; ²School of Earth and Planetary Sciences, Curtin University, Australia

The rationality of urban financial network layout based on POI data

Jinbo Liu^{1,2}, Shishuo Xu^{1,2}, Haizhi Ma^{3,2}, Sikai Wang^{3,2}, Fangning Li^{3,2}
¹School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, 15 Yongyuan Road, Beijing, 102616, China; ²Key Laboratory of Urban Spatial Informatics, Ministry of Natural Resources of the People's Republic of China, 15 Yongyuan Road, Beijing, 102616, China; ³Beijing Urban Construction Exploration & Surveying Design Research Institute Co. Ltd, Beijing, 100101, China

VISUALIZATION OF ORIGIN–DESTINATION FLOW BUFFERS

Ci Song^{1,2}

¹Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China, People's Republic of;

²University of Chinese Academy of Sciences, Beijing, China

Zero-shot CLIP-based Object Detection for Risky Environment Identification in Cycling Safety from Panoramic Videos

Meihui Wang, James Haworth, Natchapon Jongwiriyanurak
University College London, United Kingdom

A COMPREHENSIVE MEASUREMENT MODEL FOR JOB-HOUSING BALANCE CONSIDERING SPATIAL INTERACTIONS: A CASE STUDY IN SHANGHAI

Yuting Chen¹, Changfeng Jing², Gaoran Xu²

¹Beijing University of Civil Engineering and Architecture, China, People's Republic of; ²China University of Geosciences, China, People's Republic of

Awareness for the Masses: A Novel Approach in Oil Spill Detection, Identification, and Classification via Multisource Technologies and Artificial Intelligence

Tom Avikasis Cohen
University of Haifa, Israel

Awareness for the Masses: A Novel Approach in Oil Spill Detection, Identification, and Classification via Multisource Technologies and Artificial Intelligence

Tom Avikasis Cohen
University of Haifa, Israel

MULTI-SCALE DYNAMIC PARTITIONING SYSTEM OF URBAN SPATIAL UNITS

Tao Liang¹, Changfeng Jing², Feifei Zhuo¹, Yunlong Feng¹, Hongyang Zhang¹, Yanli Fu³

¹Beijing University of Civil Engineering and Architecture, China, People's Republic of; ²China University of Geosciences, China, People's Republic of; ³JD Logistics, Beijing, China

Evaluation of a low-cost photogrammetric system for the retrieval of 3D tree architecture

Aleksandra Zaforemska¹, Rachel Gaulton¹, Jon Mills¹, Wen Xiao²

¹Newcastle University, United Kingdom; ²China University of Geosciences

APPLICATION OF LUCAS-KANADE DENSE FLOW FOR TERRAIN MOTION IN LANDSLIDE MONITORING APPLICATION

Vasil Yordanov¹, Xuan Quang Truong², Monica Corti¹, Laura Longoni¹, Maria Antonia Brovelli^{1,3}

¹Department of Civil and Environmental Engineering (DICA) Politecnico di Milano, Piazza Leonardo da Vinci 32, Milan, Italy; ²Information Technology Faculty, Hanoi University of Natural Resources and Environment, 41A Phu Dien Road, Phu Dien, North-Tu Liem district, Hanoi, Vietnam; ³Istituto per il Rilevamento Elettromagnetico dell'Ambiente, CNR-IREA, via Bassini 15, 20133 Milano

Awareness for the Masses: A Novel Approach in Oil Spill Detection, Identification, and Classification via Multisource Technologies and Artificial Intelligence

Tom Avikasis Cohen
University of Haifa, Israel

DEVELOPMENT OF AN INDEX FOR ASSESSING FUSARIUM WILT DISEASE IN BANANA PLANTATIONS USING 8-BAND PLANETSCOPE IMAGE

Ariel Conferido Blanco

Philippine Space Agency / University of the Philippines Diliman, Philippines

PHOTOGRAMMETRIC MEASUREMENT OF ROCKFALL KINEMATICS CONSTRAINED BY THE LAW OF FREE FALL

Langping Li¹, Hengxing LAN^{1,2,3}

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University, China; ³Key Laboratory of Ecological Geology and Disaster Prevention of Ministry of Natural Resources, Chang'an University, China

Towards Energy Atlas of Sofia City in Bulgaria

Lidia Lazarova Vitanova, Dessislava Georgieva Petrova-Antonova, Petar Ognyanov Hristov, Evgeny Artashesovich Shirinyan

Big Data for Smart Society (GATE) Institute, Bulgaria

CARTOGRAPHIC FEATURES EXTRACTION METHODOLOGY IN REMOTE SENSING IMAGES AIMING AT THE CARTOGRAPHIC UPDATE OF ALLOTMENTS

Eduardo Soares Nascimento¹, Allan Alves Lopes Ferreira¹, Thamiros Gil Godoy¹, Caio Flávio Martinez Fontoura Junior¹, Guilherme Pina Cardim¹, Pedro Miguel Berardo Duarte Pina², Erivaldo Antonio da Silva¹

¹São Paulo State University, Brazil; ²University of Coimbra, Portugal

ASSESSING THE EFFECTIVENESS OF INPAINTING TECHNIQUES FOR ENHANCING FEATURE EXTRACTION QUALITY IN REMOTE SENSING IMAGERY

Caio Flávio Martinez Fontoura Júnior, Guilherme Pina Cardim, Eduardo Soares Nascimento, Marilaine Colnago, Wallace Correa de Oliveira Casaca, Erivaldo Antonio da Silva

São Paulo State University - Unesp, Brazil.

ASSESSING THE IMPACT OF HISTORICAL AND FUTURE CLIMATE CHANGE SCENARIOS ON DIURNAL HEAT STRESS IN ASIA

Pir Mohammad, Qihao Weng

The Hong Kong Polytechnic University, Hong Kong S.A.R. (China)

An UAV-based platform to support PV plant diagnosis using SWIR, RGB, IRT imagery

Angelos Antonopoulos¹, Georgios Petrakis¹, Achilleas Tripolitsiotis¹, Panagiotis Partsinevelos¹, Eftychios Koutroulis¹, Juan Luis Carús², Diego Fernández², Daniel Martínez²

¹Technical University of Crete, Greece; ²TSK Electrónica y Electricidad S.A, Gijón, Spain

RADAR/INS TIGHTLY-COUPLED INTEGRATION FOR LAND VEHICLE NAVIGATION

Mohamed Elkholy^{1,2}, Mohamed Elsheikh^{1,3}, Naser El-Sheimy¹

¹University of Calgary, Canada; ²Alexandria University, Egypt; ³Tanta University, Egypt

EVALUATING ERA5 WEATHER PARAMETERS DATA USING REMOTE SENSING AND IN SITU DATA OVER NORTH RED SEA

Mohamed Ayman¹, Zeinab Salah², Kareem Tonbol¹, Mohamed Shaltout³

¹Arab Academy For Science and Technology, Egypt; ²Egyptian Metrological Authority (EMA), Egypt; ³Department of Oceanography, Faculty of Science, Alexandria University, Egypt

A DEEP LEARNING APPROACH USING VERY-HIGH SPATIAL RESOLUTION GAOFEN-2 IMAGES TO SUPPORT THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOAL INDICATOR 11.7.1 ASSESSMENT

Jiongbin Chen^{1,2}, Ping Zhang¹, Jun Zhang¹, Hao Wu¹

¹National Geomatics Center of China, Beijing 100830, China; ²College of Geoscience and Surveying Engineering, China University of Mining and Technology, Beijing 100083, China

Assessing the Role of Industrial and Non-Industrial Urban Land Consumption in Economic Growth

Cheolhee YOO, Qihao Weng, Huijuan Xiao

The Hong Kong Polytechnic University, Hong Kong S.A.R. (China)

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING POTENTIAL AS TOOLS FOR GEOREFERENCING AND FEATURES DETEC

Mohamed Ali Amasha

Al-Azhar University, Egypt

Investigation the Impact of Human Error on GPS Data Accuracy

Veerendra Yadav¹, Rahul Dev Garg², Pradeep Kumar Garg²

¹Indian Institute of Technology (IIT) Roorkee ,Uttarakhand (India)-247667; ²Indian Institute of Technology (IIT) Roorkee, Uttarakhand (India)-247667

ESTIMATION OF WHEAT KERNEL MOISTURE CONTENT IN-FIELD BASED ON PLANETSCOPE AND SENTINEL-2 SATELLITE IMAGES

Junhan Luo¹, Zhaocong Wu^{1,2,3}, Keyi Rao¹, Haoyu Lin¹, Siqing Zhang¹, Zhixiong Dai¹, Weihua Lin¹, Yixian Yue¹

¹School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China; ²Hubei LuoJia Laboratory, China; ³State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China

Application of deep learning crop classification model based on multispectral and sar satellite imagery

Yitian Qi, Gabriele Bitelli, Emanuele Mandanici, Francesca Trevisiol

University of Bologna, Italy

GENERATING LIGHTWEIGHT BUILDING MODELS WITH PRESERVED STRUCTURAL FEATURES FROM NOISY 3D MESHES

RenZhong Guo, Tian Yu, WeiXi Wang, XiaoMing Li, ShengJun Tang, LinFu Xie

¹ Research Institute for Smart Cities, School of Architecture and Urban Planning, Shenzhen University, 518060 Shenzhen, China

FILLING GAPS BETWEEN MESHES OF TREE CROWN AND TREE TRUNK BASED ON BOUNDARY CONSTRAINTS AND COORDINATE PROJECTION FOR 3D TREE MODELLING

WEI XI WANG, LIN PING HONG, HONG SHENG HUANG, XIAO MING LI, SHENG JUN TANG, REN ZHONG GUO, LIN FU XIE

Research Institute for Smart Cities, School of Architecture and Urban Planning, Shenzhen University, 518060 Shenzhen, China

MONITORING OF ILLEGAL MINERAL EXTRACTION USING SENTINEL REMOTE SENSING DATA AND MACHINE LEARNING METHODS

Krystyna Michalowska^{1,3}, Ewa Glowienka^{2,3}

¹Gdańsk University of Technology, Poland; ²AGH University of Krakow, Poland; ³University of Agriculture in Krakow, Poland

1 IAMS-1: Real-time infrastructure monitoring with drones 1

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall3

Session Chair: Eija Honkavaara, Finnish Geospatial Research Institute in National Land Survey of Finland, Finland

VEHICLE TRACKING AND SPEED ESTIMATION FROM UNMANNED AERIAL VEHICLES USING SEGMENTATION-INITIALISED TRACKERS

Sofia Tilon, Francesco Nex

University of Twente, Netherlands, The

Hybrid Adjustment of UAS-based LiDAR and Image Data

Yogender Yadav^{1,4}, Bashar Alsadik¹, Francesco Nex¹, Fabio Remondino², Philipp Glira³

¹Department of Earth Observation, Faculty ITC, University of Twente, Enschede, Netherlands; ²3D Optical Unit, Bruno Kessler Foundation (FBK), Trento, Italy; ³Competence Center Autonomous Systems, Austrian Institute of Technology, Vienna, Austria;

⁴Inter-University Department of Regional & Urban Studies and Planning (DIST), Politecnico di Torino, Italy

Low-cost cloud-based HD-Map Updates for Infrastructure Management and Maintenance

Ahmed Mohamed¹, Mohamed Elhabiby², Mohamed Moussa^{1,2,3}, Naser El-Sheimy¹

¹Dept. of Geomatics Engineering, University of Calgary, Calgary, Alberta, Canada; ²Public Works Department, Ain Shams University, Cairo, Egypt; ³Micro Engineering Tech. Inc., Calgary, Alberta, Canada

AN UNMANNED AERIAL SYSTEM FOR ON-THE-EDGE TRAFFIC MONITORING IN WORK-ZONE APPROACH AREA

Joaquín Martínez-Sánchez, David Conde Morales, Samuel Novoa, Pedro Arias Sánchez

University of Vigo, Spain

Deep Learning-Based Model for Paddy Diseases Classification by Thermal Infrared Sensor: An Application for Precision Agriculture

Omneya Attallah

Arab Academy for Science Technology and Maritime Transport Colle, Egypt

1-GeoHB 2023 1: GeoHB 2023 1

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* Morgana

Session Chair: Wei Huang, Tongji University, China, People's Republic of

Session Chair: Yingwei Yan, National University of Singapore, Singapore

COMPARING THE SPATIOTEMPORAL TRAVEL PATTERNS AND INFLUENCING FACTORS OF BIKE SHARING AND E-BIKE SHARING SYSTEMS

Yang Chen^{1,2}, Shishuo Xu^{1,2}, Mingyi Du^{1,2}, Haizhi Ma^{3,2}, Sikai Wang^{3,2}, Fangning Li^{3,2}

¹School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, 15 Yongyuan Road, Beijing, 102616, China; ²Key Laboratory of Urban Spatial Informatics, Ministry of Natural Resources of the People's Republic of China, 15 Yongyuan Road, Beijing, 102616, China; ³Beijing Urban Construction Exploration & Surveying Design Research Institute Co. Ltd, Beijing 100101, China

Q-Learning-Based Route Exploration From Observations

Mustafa Can Ozkan

University College London, United Kingdom

SPATIO-TEMPORAL ANALYSIS OF URBAN ECONOMIC RESILIENCE DURING COVID-19 WITH MULTILAYER COMPLEX NETWORKS

Zhihang Liu^{1,2}, Jinlin Wu³, Hao Li², Martin Werner²

¹School of Urban Planning & Design, Peking University Shenzhen Graduate School, Shenzhen, Guangdong 518055, China;

²Department of Aerospace and Geodesy, Professorship for Big Geospatial Data Management, Technical University of Munich, Munich 80333, Germany; ³School of Journalism and Communication, Lanzhou University, 730000 Lanzhou, China

HOW AIR QUALITY AFFECTS HUMAN MOBILITY PATTERNS: AN EXPLORATORY ANALYSIS

Shishuo Xu^{1,2}, Yang Zhao^{1,2}, Songnian Li³

¹School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture; ²Key Laboratory of Urban Spatial Informatics, Ministry of Natural Resources of the People's Republic of China; ³Department of Civil Engineering, Toronto Metropolitan University

1-Laser Scanning 2023 1: Forestry

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall1

Session Chair: Jan Boehm, University College London, United Kingdom

Individual Tree AGB Estimation Based on Fractal Parameters and Tree Volume

Zhenyang Hui, Yuanping Xia, Penggen Cheng, Zhaochen Cai

East China University of Technology, China, People's Republic of

Three-dimensional deep learning for leaf-wood segmentation of tropical tree point clouds

Wouter A. J. Van den Broeck, Louise Terryn, Wout Cherlet, Zane T. Cooper, Kim Calders

CAVElab, Ghent University, Gent, Belgium

MEASURING FOREST CANOPY WATER MASS IN THREE DIMENSIONS USING TERRESTRIAL LASER SCANNING

Ahmed Elsherif¹, Rachel Gaulton², Jon Mills³, Essam Sharaf El Din¹

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The contribution has been withdrawn.

DETERMINATION OF VERTICES OF POLYHEDRAL AND CUBE TARGETS IN POINT CLOUDS

Antonio Maria Garcia Tommaselli, Beatriz Coelho Silva, Maria Eduarda Bezerra Gomes da Silva, José Roberto Nogueira, Marcela do Valle Machado

Unesp - São Paulo State University, Brazil

1-Semantic 3D 1: Matching and 3D reconstruction

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall2

Session Chair: Norbert Haala, Stuttgart University, Germany

DEEP LEARNING-BASED STEREO MATCHING FOR HIGH-RESOLUTION SATELLITE IMAGES: A COMPARATIVE EVALUATION

Xu He¹, San Jiang^{1,2}, Sheng He³, Qingquan Li⁴, Wanshou Jiang³, Lizhe Wang^{1,2}

¹School of Computer Science, China University of Geosciences, Wuhan 430074, China; ²Hubei Key Laboratory of Intelligent Geo-Information Processing, China University of Geosciences, Wuhan 430078, China; ³State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430072, China; ⁴College of Civil and Transportation Engineering, Shenzhen University, Shenzhen 518060, China

BeDOI: Benchmarks for Determining Overlapping Images with Photogrammetric Information

Hao Zhan¹, Yifei Yu¹, Yiwei Xu¹, Qianbao Hou¹, Xin Wang¹, Yu Feng², Zongqian Zhan¹, Minglei Li³, Michael Gruber⁴, Ronny Hänsch⁵, Christian Heipke⁶

¹School of Geodesy and Geomatics, Wuhan University, Wuhan, People's Republic of China; ²Chair of Cartography and Visual Analytics, Technical University of Munich, Germany; ³College of Electronic and Information Engineering, Nanjing University of Aeronautics and Astronautics; ⁴Vexcel Imaging GmbH, Austria; ⁵Microwaves and Radar Institute, German Aerospace Center (DLR), Germany; ⁶Institute of Photogrammetry and GeoInformation, Leibniz University Hannover, Germany

Transformer-based Method for Semantic Segmentation and Reconstruction of the Martian Surface

Zhaojin Li, Bo Wu, Zeyu Chen, Yuan Ma

Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, Hung Hom, Hong Kong

DSM2DTM: AN END-TO-END DEEP LEARNING APPROACH FOR DIGITAL TERRAIN MODEL GENERATION

Ksenia Bittner¹, Stefano Zorzi², Thomas Krauß¹, Pablo d'Angelo¹

¹German Aerospace Center (DLR), Germany; ²Graz University of Technology, Austria

10-Satellite Remote Sensing 10: Imaging Technologies and Quality Assessment in Remote Sensing 10

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* White Nile

Session Chair: Ahmed Shaker, Toronto Metropolitan University, Canada

FLASH LiDAR SINGLE PHOTON IMAGING OVER 50 KM

Zhongqiu Xia

Beijing Institute of Space Mechanics & Electricity, China, People's Republic of

QUALITY VERIFICATION OF OVERALL PLANNING SATELLITE REMOTE SENSING IMAGES PRODUCT FOR REAL 3D CHINA CONSTRUCTION PROJECT

su yin, haipeng chen

National Quality Inspection and Testing Center for Surveying and Mapping Products, China, People's Republic of

THREE-DIMENSIONAL MEASUREMENT METHOD OF FLATNESS OF LARGE DEPLOYABLE FLAT SAR

haitao shi

China Academy of Space Technology, China, People's Republic of

Development of a Web Platform to visualize PS-INSAR Data in a Building Information Management System

Philipp Schneider¹, Chia-Hsiang Yang², Uwe Soergel¹, Tobias Rudolph³, Kian Pakzad², Yang Li², Marius Koppe³

¹Institut für Photogrammetrie, Germany; ²EFTAS Remote Sensing; ³Forschungszentrum Nachbergbau, Technische Hochschule Georg Agricola

3-Navigation, Guidance 3: Navigation, Guidance and Control of Autonomous Vehicles 3

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall5

Session Chair: Haidy Elghamrawy, Royal Military College of Canada, Canada

Efficient Navigation Method for Team Parcel Delivery System

Toshihiro Osaragi, Yuya Taguchi

Tokyo Institute of Technology, Japan

Airborne Safety in the Age of 5G: Assessing the Potential Interference between C-Band and Aeronautical Radar Altimeter

Aisha Gamal Elsayem¹, Haidy Elghamrawy², Ali Massoud², Aboelmagd Noureldin²

¹Department of Electrical and Computer Engineering, Queen's University, Kingston, ON, Canada; ²Navigation and Instrumentation (NavINST) Research Lab, Department of Electrical and Computer Engineering, Royal Military College of Canada, Kingston, ON, Canada

EFFECTS OF INFORMATION COLLECTION ON STREET-BLOCKAGE FOR NAVIGATION OF FIRE ENGINES IN A MAJOR EARTHQUAKE

Toshihiro Osaragi, Noriaki Hirokawa

Tokyo Institute of Technology, Japan

Deep learning for Object Detection using RADAR Data

Ahmed M. Reda^{1,2}, Naser El-Sheimy¹, Adel Moussa^{1,3}

¹University of Calgary, Canada; ²Benha University, Egypt; ³Port Said University, Egypt

3-Smart Forests 3: Forest and agriculture monitoring and assessments 3

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* Babylon

Session Chair: Yunsheng Wang, FGI, Finland

Forest monitoring from space using deep learning

Christian Heipke

LUH, Germany

A HIGH-PRECISION EXPLICIT FOREST CARBON STOCK MODEL BASED ON REMOTE SENSING

Ningning Zhu¹, Bisheng Yang¹, Weishu Gong Gong², Shen Ying³, Wenxia Dai⁴, Zhen Dong¹

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University; ²Department of Geographical Sciences, University of Maryland; ³School of Resource and Environmental Sciences, Wuhan University; ⁴School of Geography and Information Engineering, China University of Geosciences

COMBINING YOLO V5 AND TRANSFER LEARNING FOR SMOKE-BASED WILDFIRE DETECTION IN BOREAL FORESTS

Anna-Maria Raita-Hakola¹, Samuli Rahkonen¹, Juha Suomalainen², Lauri Markelin², Raquel Oliveira², Teemu Hakala², Niko Koivumäki², Eija Honkavaara², Ilkka Pölönen¹

¹Faculty of Information Technology, University of Jyväskylä, 40014 Jyväskylä, Finland; ²Department of Remote Sensing and Photogrammetry, Finnish Geospatial Research Institute (FGI), National Land Survey of Finland (NLS), FI-00521 Helsinki, Finland

UNSUPERVISED STATISTICAL APPROACH FOR TREE-LEVEL SEPARATION OF FOLIAGE AND NON-LEAF COMPONENTS FROM POINT CLOUDS

Anna Shcherbacheva¹, Mariana B. Campos¹, Xinlian Liang^{1,2}, Eetu Puttonen¹, Yunsheng Wang¹

¹Finnish Geospatial Research Institute (FGI) - National Land Survey of Finland (NLS), Finland; ²State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China

CHALLENGES AND RECOMMENDATIONS FOR 3D PLANT PHENOTYPING IN AGRICULTURE USING TERRESTRIAL LASERS SCANNERS

Tomislav Medic¹, Jonas Bömer², Stefan Paulus²

¹ETH Zurich, Switzerland; ²Institute of Sugar Beet Research, Göttingen, Germany

4-UAV-based mapping 4: UAV Application in Agriculture and Forestry (1)

Time: Wednesday, 06/Sept/2023: 8:30am - 10:00am · *Location:* Blue Nile

Session Chair: Mohamed Mostafa, Trimble, Canada

ASSESSMENT OF LIGHT ENVIRONMENT FOR HERBACEOUS VEGETATION IN SEMI-NATURAL GRASSLAND USING TIME-SERIES UAV DATA

Naoko Miura¹, Yuji Niwa¹, Susumu Yamada²

¹The University of Tokyo, Japan; ²Tokyo University of Agriculture

EVALUATION OF THE BARK BEETLE GREEN ATTACK DETECTABILITY IN SPRUCE FOREST FROM MULTITEMPORAL MULTISPECTRAL UAV IMAGERY

Salma Bijou, Lucie Kupková, Markéta Potůčková, Lucie Červená, Jakub Lysák

Department of Applied Geoinformatics and Cartography, Faculty of Science, Charles University, Albertov 6, Prague 2, Czech Republic

UAV4Tree: deep learning-based system for automatic classification of tree species using RGB optical images obtained by an unmanned aerial vehicle

Roberto Pierdicca¹, Lindo Nepi², Adriano Mancini², Eva Savina Malinverni¹, Mattia Balestra³

¹Università Politecnica delle Marche, Dipartimento di Ingegneria Civile, Edile e dell' Architettura (DICEA); ²Università Politecnica delle Marche, Dipartimento di Ingegneria dell'Informazione (DII); ³Università Politecnica delle Marche, Dipartimento di Scienze Agrarie, Alimentari ed Ambientali (D3A)

11-Satellite Remote Sensing 11: SAR (Synthetic Aperture Radar) and InSAR Techniques for Environmental Monitoring and Disaster Assessment 11

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* White Nile

Session Chair: Francesco Pirotti, University of Padova, Italy

UNSUPERVISED WINTER WHEAT MAPPING BASED ON MULTI-SPECTRAL AND SYNTHETIC APERTURE RADAR OBSERVATIONS

Hsuan-Yi Li¹, James A Lawrence¹, Philippa J Mason², Richard Ghail³

¹Dept. of Civil and Environmental Engineering, The Skempton Building, Imperial College London, South Kensington, London SW7 2AZ, UK; ²Department of Earth Science & Engineering, Imperial College London, Prince Consort Road, London SW7 2AZ, UK;

³Department of Earth Sciences, Queens Building 245, Royal Holloway, University of London Egham, Surrey TW20 0EX, UK

Land Subsidence in Wuhan Revealed Using a Multi-Sensor InSAR Time Series Fusion Approach

Haonan Jiang^{1,2}, Timo Balz¹, Jianan Li³

¹State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, 430079 Wuhan, China; ²Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences, 14473 Potsdam, Germany;

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MULTI-ORIENTATION EDGE-BASED SATELLITE IMAGE MATCHING METHOD FOR OPTICAL AND SAR IMAGES

Yi Lin^{1,2}, Lang Li¹, Lujia Wei¹, Liming Liu³, Jie Yu¹

¹College of Surveying and Geo-Informatics, Tongji University, China, People's Republic of; ²Research Center of Remote Sensing Technology and Application, Tongji University, China, People's Republic of; ³Shanghai Ubiquitous Navigation Technology Co., Ltd., China, People's Republic of

Dielectric dependency and its usefulness in oil-spill detection based on hybrid-polarimetry SAR

Ajeet Kumar¹, Rajib Kumar Panigrahi², Marco Martorella^{1,3}

¹National Inter-University Consortium for Telecommunications (CNIT, www.cnit.it/en), Italy; ²Indian Institute of Technology, Roorkee; ³University of Birmingham

2-GeoHB 2023 2: GeoHB 2023 2

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* Morgana

Session Chair: Bi Yu Chen, Wuhan University, China, People's Republic of

Session Chair: Wei Huang, Tongji University, China, People's Republic of

Understanding User Equilibrium States of Road Networks using Big Trajectory Data

Bi Yu Chen¹, Xuan-Yan Chen¹, Hui-Ping Chen²

¹Wuhan University, China; ²Huazhong University of Science and Technology, China

HUMAN MOBILITY PATTERNS AMONG DIFFERENT PERIODS DURING WEEKDAYS AND WEEKENDS

Penxiang Su¹, Wei Huang^{1,2}

¹College of Surveying and Geo-Informatics, Tongji University, China; ²Department of Civil Engineering, Toronto Metropolitan University, Canada

SPATIAL INTERACTION ANALYSIS OF URBAN FUNCTIONAL DISTRICTS BASED ON TAXI TRAJECTORIES

Ye Zhang^{1,2,3}, Wanzeng Liu^{1,2,3}, Xiuli Zhu^{1,2,3}, Yunlu Peng^{1,2,3}, Ran Li^{1,2,3}, Tingting Zhao^{1,2,3}, Xinpeng Wang^{1,2,3}, Xi Zhai^{1,2,3}, Xinli Di^{1,2}, Hong Xu⁴

¹National Geomatics Center of China, China, People's Republic of; ²Key Laboratory of Spatio-temporal Information and Intelligent Services (LSIIS), MNR; ³Hubei LuoJia Laboratory; ⁴High-Tech Research & Development Center (HTRDC) of the Ministry of Science & Technology, P.R.C.

Estimation and mapping of the settlement field potential basing on real transportation connections between settlements

Kuzmin Pavel¹, Karpenko Mikhail², Evgeny Panidi¹, Alexander Sebentsov²

¹Saint Petersburg State University, Russian Federation; ²Russian Academy of Sciences, Russian Federation

2-IAMS 2: Autonomous drones and 3D mapping in complex environments 2

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall3

Session Chair: Taejung Kim, Inha University, Korea, Republic of (South Korea)

Planimetric Rail Positioning using UAV Photogrammetry: Towards Automated and Safe Railway Infrastructure Monitoring

Suzanna Cuypers, Maarten Bassier, Maarten Vergauwen, Heinder De Winter

KU Leuven, Belgium

MONO-HYDRA: REAL-TIME 3D SCENE GRAPH CONSTRUCTION FROM MONOCULAR CAMERA INPUT WITH IMU

Bavantha Lakshan Udugama Udugama Vithanage, George Vosselman, Francesco Nex

University of Twente, Netherlands, The

A DRONE SYSTEM FOR AUTONOMOUS MAPPING FLIGHTS INSIDE A FOREST – A FEASIBILITY STUDY AND FIRST RESULTS

Väinö Karjalainen, Teemu Hakala, Anand George, Niko Koivumäki, Juha Suomalainen, Eija Honkavaara

Finnish Geospatial Research Institute in National Land Survey of Finland, Finland

Visual LiDAR Odometry Using Tree Trunk Detection and LiDAR Localization

KwanWoo Park, Soon-Yong Park

kyungpook national university, Korea, Republic of (South Korea)

TOWARDS AUTONOMOUS HIGH-DEFINITION MAP CONSTRUCTION

WU Junli¹, WANG Xiaoqing¹, ZHANG Peng¹, SONG Weiwei², CHEN Ming³

¹National Geomatics Center of China; ²National Engineering Research Center of Satellite Positioning System; ³Ministry of Natural Resource,

2-Laser Scanning 2023 2: Vegetation & Terrain

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall1

Session Chair: Bisheng Yang, Wuhan University, China, People's Republic of

TOWARDS WHEAT YIELD ESTIMATION IN PLANT BREEDING FROM INHOMOGENEOUS LIDAR POINT CLOUDS USING STOCHASTIC FEATURES

Tomislav Medic¹, Nicole Manser², Norbert Kirchgessner³, Lukas Roth³

¹Institute of Geodesy and Photogrammetry, ETH Zurich; ²Dept. of Geography, University of Zurich; ³Institute of Agricultural Sciences, ETH Zurich

THREE-DIMENSIONAL MODELING OF SHRUBS BASED ON LIDAR POINT CLOUD

Zheng Li¹, Minglei Li¹, Meng Zhang²

¹College of Electronic and Information Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China; ²Co-Innovation Center for Sustainable Forestry in Southern China, College of Biology and the Environment, Nanjing Forestry University, Nanjing 210037, China

Tree digitisation from point clouds with Unreal Engine

Sergio González-Domínguez, Jesus Balado Frias, Ana Novo, Pedro Arias
University of Vigo, Spain

3D Point Cloud Completion using Terrain-continuous Constraints and Distance-weighted Interpolation for Lunar Topographic Mapping

Siyan Xu^{1,2}, Rong Huang^{1,2}, Yusheng Xu^{1,2}, Zhen Ye^{1,2}, Huan Xie^{1,2}, Xiaohua Tong^{1,2}

¹College of Surveying and Geo-informatics, Tongji University, Shanghai, China; ²The Shanghai Key Laboratory of Space Mapping and Remote Sensing for Planetary Exploration, Shanghai, China

2-Navigation, Guidance 2: Navigation, Guidance and Control of Autonomous Vehicles 2

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall5

Session Chair: Sidney Givigi, Queen's University, Canada

LIDAR-INERTIAL NAVIGATION BASED ON MAP AIDED DISTANCE CONSTRAINT AND FACTOR GRAPH OPTIMIZATION

Mengchi Ai¹, Mohamed Elhabiby², Ilyar Asl Sabbaghian Hokmabadi¹, Naser El-Sheimy¹

¹University of Calgary, Canada; ²Micro Engineering Tech Inc.

Enhancing Urban Vehicular Navigation: Improving Classical Topological Map Matching Through Ray-Casting

Hany Ragab¹, Sidney Givigi², Aboelmagd Noureldin^{1,3}

¹Dept. of Electrical and Computer Engineering, Queen's University, Kingston, ON, Canada, K7L3N9; ²School of Computing, Queen's University, Kingston, ON, Canada, K7L2N8; ³Dept. of Electrical and Computer Engineering, Royal Military College of Canada, Kingston, ON, Canada, K7K7B4

AUTONOMOUS VEHICLES LOCALISATION BASED ON SEMANTIC MAP MATCHING METHOD

He Huang, Dongdong Yu, Junxing Yang, Xun Liu

Beijing University of Civil Engineering and Architecture, China, People's Republic of

ASC-SLAM: Activity Semantics Based Cooperative SLAM System

Baoding Zhou, Chunyu Li, Jiasong Zhu, Qingquan Li

Shenzhen University, China, People's Republic of

ENHANCED HYBRID PATH PLANNING ALGORITHM BASED ON APF AND A-STAR

Ahmed S. Abdel-Rahman¹, Shady Zahran², Basem E. Elnaghi¹, S.F. Nafea¹

¹Suez Canal University, Egypt; ²AAST, Egypt

2-Semantic 3D 2: Semantic segmentation and satellite image time series 2

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall2

Session Chair: Ksenia Bittner, German Aerospace Center (DLR), Germany

Learning on the Edge: Benchmarking Active Learning for the Semantic Segmentation of ALS Point Clouds

Michael Koelle, Volker Walter, Stefan Schmohl, Uwe Soergel

Institute for Photogrammetry, University of Stuttgart, Germany

TRANSFORMER MODELS FOR MULTI-TEMPORAL LAND COVER CLASSIFICATION USING REMOTE SENSING IMAGES

Mirjana Voelsen, Simon Lauble, Franz Rottensteiner, Christian Heipke

Leibniz University Hannover, Germany

Using time series image data to improve the generalization capabilities of a CNN - the example of deforestation detection with Sentinel-2

Mabel Ximena Ortega Adarme^{1,2}, Dennis Wittich², Franz Rottensteiner², Christian Heipke², Raul Queiroz Feitosa¹

¹Pontifical Catholic University of Rio de Janeiro, Brazil; ²Leibniz Universität Hannover, Germany

Target-guided learning for rare class segmentation in large-scale urban point clouds

Xinlong Zhang¹, Dong Lin², Ruihang Xue¹, Uwe Soergel¹

¹University of Stuttgart, Germany; ²State Key Laboratory of Geo-Information Engineering, Beijing, China

4-Smart Forests 4: Close range sensing I - sensors and solutions 4

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* Babylon

Session Chair: Eetu Puttonen, National Land Survey of Finland, Finland

Sensing and Data Analytics Technologies as Facilitators for Digital Forestry

Songlin Fei, Habib Ayman

Purdue University, United States of America

AUTOMATED FINE-SCALE FOREST INVENTORY USING BACKPACK LIDAR – A STRATEGY BASED ON FEATURE EXTRACTION, MATCHING, AND TRACKING FROM INTEGRATED SCANS

Heidar Rastiveis^{1,2}, Tian Zhou¹, Chunxi Zhao¹, Songlin Fei², Ayman Habib¹

¹Lyles School of Civil Engineering, Purdue University, United States of America; ²Department of Forestry and Natural Resources, Purdue University, United States of America

A COMPARISON STUDY OF LOW-COST PERSONAL LASER SCANNING SYSTEMS FOR FOREST PLOT-LEVEL INVENTORIES

Xiaochen Wang, Haiyun Yao, Yangyang Ma, Xinlian Liang

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University

FOREST FEATURE LIDAR SLAM (F2-LSLAM) AND INTEGRATED SCAN SIMULTANEOUS TRAJECTORY ENHANCEMENT AND MAPPING (IS2-TEAM) FOR ACCURATE FOREST INVENTORY USING BACKPACK SYSTEMS

Tian Zhou¹, Raja Manish¹, Songlin Fei², Ayman Habib¹

¹Lyles School of Civil Engineering, Purdue University, United States of America; ²Department of Forestry and Natural Resources, Purdue University, United States of America

ADP - 4: Advanced Data Preparation & Data Management for Geospatial & Remote sensing 4

Time: Wednesday, 06/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall6

Session Chair: Hussein Abdulmuttalib, Dubai Municipality, United Arab Emirates

QGIS AND OPEN DATA CUBE APPLICATIONS FOR LOCAL CLIMATE ZONES ANALYSIS LEVERAGING PRISMA HYPERSPECTRAL SATELLITE DATA

Daniele Oxoli¹, Jesus Rodrigo Cedeno Jimenez¹, Emanuele Capizzi¹, Maria Antonia Brovelli¹, Mario Siciliani de Cumis², Patrizia Sacco², Deodato Tapete³

¹Department of Civil and Environmental Engineering, Politecnico di Milano, Milano Leonardo. Milan, Italy; ²Italian Space Agency (ASI), Matera, Italy; ³Italian Space Agency (ASI), Roma, Italy

DEVELOPMENT OF QGIS PLUGIN FOR URBAN ENERGY SIMULATION USING 3D CITY MODEL AT THE CITY DISTRICT LEVEL

Mohammad Hosseingholizadeh^{1,2}, Volker Coors², Hamidreza Ostadabbas¹, Frank Friesecke¹

¹die STEG Stadtentwicklung GmbH, Germany; ²Stuttgart University of Applied Sciences

ON THE QUALITY CONTROL OF MONITORING RESULTS OF URBAN SPECIAL GEOGRAPHY AND NATIONAL CONDITIONS

Chunxi CHEN, Xiaodi WANG, Haitao Zhao, Fujun LUO, Hai Li

National Quality Inspection and Testing Center For Surveying and Mapping Products

Study on the historical changes in the central axis of Beijing based on modern technology

Zhiheng He¹, Keliang Ding¹, Xuewei Zhang¹, Xi Zhang¹, Pu Zhang²

¹School of Geomatics and Urban Spatial Information, Beijing University of Civil Engineering and Architecture, Beijing, 102616;

²Beijing Institute of Geo-Engineering, Beijing, 100048

1-GI4SDGS: Assessing SDGs progress by integrating geospatial and statistical information

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall3

Session Chair: Songnian Li, Toronto Metropolitan University, Canada

Session Chair: ORHAN ALTAN, ITU-ISPRS, Turkiye

Hazard susceptibility mapping: in-situ vs multi-source data and model generalisation

Angelly de Jesus Pugliese Vilorio, Andrea Folini, Daniela Carrion, Maria Antonia Brovelli

Department of Civil and Environmental Engineering, Politecnico di Milano, 20123, Milan, Italy

Landscape impact assessment of SDG2 development projects using remote sensing and unsupervised control site selection

Hannah Kemper, Theo Renouard, Sarah Muir, Rogerio Bonifacio, Pini Giancarlo, Paolo Lucchino, Lorenzo Bosi

World Food Programme, Headquarters Rome, Italy

USING GHSL TO ANALYZE URBANIZATION AND LAND-USE EFFICIENCY IN THE PHILIPPINES FROM 1975-2020: TRENDS AND IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT

Jojene Rendon Santillan¹, Christian Heipke²

¹Institute of Photogrammetry and GeoInformation, Leibniz University Hannover, Germany; Caraga State University, Philippines;

²Institute of Photogrammetry and GeoInformation, Leibniz University Hannover, Germany

12-Satellite Remote Sensing 12: Remote Sensing for Urban Thermal Environment Monitoring and Analysis 12

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · *Location:* White Nile
Session Chair: Nagwa El-Ashmawy, National Water Research Center, Egypt

MEASURING THE INFLUENCE OF A MOTORWAY CONSTRUCTION ON LAND SURFACE TEMPERATURE USING LANDSAT THERMAL DATA: A CASE STUDY IN THE METROPOLITAN CITY OF MILAN

Alberto Vavassori, Mathilde Puche, Maria Antonia Brovelli

Department of Civil and Environmental Engineering, Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133 Milano, Italy

RESEARCH ON THERMAL ENVIRONMENT ANALYSIS OF PHOTOVOLTAIC POWER PLANTS BASED ON REMOTE SENSING IMAGES

HongLiang Cheng¹, He Huang¹, JunXing Yang¹, Ran Pang², JunYang Bian¹

¹Beijing University of Civil Engineering and Architecture, China, People's Republic of; ²Beijing Institute of Surveying and Mapping, China, People's Republic of

SPATIO-TEMPORAL DYNAMICS OF URBAN THERMAL ENVIRONMENT IN UDAIPUR CITY, RAJASTHAN, INDIA

URMI SHARMA¹, SEEMA JALAN¹, YOGESH KANT², ANJANA VYAS³

¹Mohanlal Sukhadia University, Udaipur, Rajasthan, India; ²Indian Institute of Remote Sensing, ISRO, Dehradun, India; ³L.J. School of Planning, L.J. University, Ahmedabad, India

A new method for improving the ecological environment index based on downscaling of Land Surface Temperature

Hui Han, Qiang Chen, Runjie Wang, Rui Liu

Beijing University of Civil Engineering and Architecture, China, People's Republic of

Influence Factors of Land Surface Temperature Inversion Using Thermal Infrared Hyperspectral Remote Sensing Satellites Data

Tinghao Liu, Zhen Li, Shaocong Liu, Xianfei Qiu

China Academy of Space Technology, China, People's Republic of

3-GeoHB 2023 3: GeoHB 2023 3

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · *Location:* Morgana

Session Chair: Yingwei Yan, National University of Singapore, Singapore

Session Chair: Wei Huang, Tongji University, China, People's Republic of

IMPACTS OF GEOSPATIAL FACTORS ON VILLAGE SITE SELECTION ALONG THE GREAT WALL WATCHTOWER BASED ON LOGISTIC REGRESSION: A CASE STUDY IN GUBEIKOU SECTION, BEIJING, CHINA

Tianyue Yang^{1,2}, Xian Guo^{1,2}, Jie Jiang^{1,2}

¹School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, Beijing, China; ²Key Laboratory of Urban Spatial Information, Ministry of Natural Resources of the People's Republic of China, Beijing University of Civil Engineering and Architecture, Beijing 102616, China

ENHANCING PEDESTRIAN TARGET RECOGNITION IN OPEN COMMUNITY MULTI-SCENE SPACES USING THE YOLO-STP NETWORK

Chun Liu¹, Yanyi Li¹, Jiajing Gu¹, Yongqi Lou², Tao Shen²

¹College of Surveying and Geo-informatics, Tongji University, Shanghai 200092, China; ²College of Design and Innovation, Tongji University, Shanghai 200092, China

CELL PHONE STATISTICS-BASED PREDICTION OF SPATIOTEMPORAL DISTRIBUTION OF STRANDED PEOPLE WALKING HOME AFTER SEVERE EARTHQUAKE IN TOKYO AND ESTIMATES OF CROWDING AT FACILITIES FOR STRANDED PERSONS

Toshihiro Osaragi

Tokyo Institute of Technology, Japan

MMCPP: A MULTI-MODAL CONTRASTIVE PRE-TRAINING MODEL FOR PLACE REPRESENTATION BASED ON THE SPATIO-TEMPORAL FRAMEWORK

Yu Chen, Xuesong Yu, Kun Qin

School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China, People's Republic of

DETERMINATION OF SPATIO-TEMPORAL TRANSMISSION PATTERNS OF DENGUE USING INDIVIDUAL PATIENT DYNAMICS: A CASE STUDY OF NCT DELHI

Vipasha Sharma, Sanjay Kumar Ghosh, Siddhartha Khare

Indian Institute of Technology Roorkee, India

3-Laser Scanning 2023 3: Registration & Close-Range Applications 3

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall5

Session Chair: Ruisheng Wang, U of Calgary, Canada

AUTOMATIC COARSE CO-REGISTRATION OF POINT CLOUDS FROM DIVERSE SCAN GEOMETRIES: A TEST OF DETECTORS AND DESCRIPTORS

Francesco Pirotti^{1,2}, Alberto Guarnieri^{1,2}, Sebastiano Chiodini^{3,4}, Carlo Bettanini^{3,4}

¹TESAF Department, University of Padova, Italy; ²CIRGEO Interdepartmental Research Center in Geomatics, University of Padova;

³Department of Industrial Engineering (DII), University of Padova, via Venezia 1, Padova, Italy; ⁴Center for Studies and Activities for Space "Giuseppe Colombo" (CISAS), University of Padova, via Venezia 15, Padova, Italy

Assessing the alignment between geometry and colors in TLS colored point clouds

Zhaoyi Wang, Matej Varga, Tomislav Medić, Andreas Wieser

ETH Zurich, Switzerland

EXPLORING THE LIMITS OF TERRESTRIAL LASER SCANNERS ON AEROSPACE MATERIALS

Kate Pexman, Stuart Robson

University College London, United Kingdom

ASSESSING THE MEASUREMENT QUALITY OF UAV-BORNE LASER SCANNING IN STEEP AND SNOW-COVERED AREAS

Sigrid Helene Strand¹, Trond Arve Haakonsen², Halgeir Dahle², Hongchao Fan¹

¹The Norwegian university of Science and Technology, Norway; ²The Norwegian Public roads Administration, Norway

3-Semantic 3D 3: Buildings, roads, and segmentation 3

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall2

Session Chair: Franz Rottensteiner, Leibniz Universität Hannover, Germany

ROOF3D: A REAL AND SYNTHETIC DATA COLLECTION FOR INDIVIDUAL BUILDING ROOF PLANE AND BUILDING SECTIONS DETECTION

Philipp Schuegraf, Mario Fuentes Reyes, Yajin Xu, Ksenia Bittner

Deutsches Zentrum für Luft- und Raumfahrt, Germany

A Comparative Study of Deep Architectures for Voxel Segmentation in Volume Images

Franz Wagner, Hans-Gerd Maas

TU Dresden, Germany

Instance Segmentation of 3D Mesh Model by Integrating 2D and 3D Data

Weixi Wang, Guoxi Zhong, Junjie Huang, Xiaoming Li, Linfu Xie

Research Institute for Smart City, School of Architecture and Urban Planning, Shenzhen University

PHASED ACCURACY ANALYSIS IN ROAD CONSTRUCTION: USING BIM AND PHOTOGRAMMETRIC OUTPUT

Heinder De Winter^{1,2}, Maarten Bassier¹, Sam De Geyter^{1,3}, Maarten Vergauwen¹

¹KU Leuven, Belgium; ²Dirk Bauwen NV; ³MEET HET BV

5-Smart Forests 5: Close range sensing II -Tree-wise analysis and modeling 5

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · Location: Babylon
Session Chair: Mariana Campos, Finnish Geospatial Research Institute, Finland

Tree-GPT: Modular Large Language Model Expert System for Forest Remote Sensing Image Understanding and Interactive Analysis

Siqi Du^{1,2}, Shengjun Tang^{1,2}, Weixi Wang^{1,2}, Xiaoming Li^{1,2}, Renzhong Guo^{1,2}

¹School of Architecture and Urban Planning, Research Institute for Smart Cities, Shenzhen University, Shenzhen, P.R. China; ²Key Laboratory of Urban Land Resources Monitoring and Simulation, Ministry of Natural Resources, Shenzhen, P.R. China

WOOD-LEAF UNSUPERVISED CLASSIFICATION OF SILVER BIRCH TREES FOR BIOMASS ASSESSMENT USING OBLIQUE POINT CLOUDS

Claudio Spadavecchia¹, Mariana Batista Campos², Marco Piras¹, Eetu Puttonen², Anna Shcherbacheva²

¹DIATI, Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino, Italy; ²Department of Photogrammetry and Remote Sensing, Finnish Geospatial Research Institute, National Land Survey of Finland, 02150 Espoo, Finland

DRONE-BASED CROP TYPE IDENTIFICATION WITH CONVOLUTIONAL NEURAL NETWORKS: AN EVALUATION OF THE PERFORMANCE OF RESNET ARCHITECTURES

Oluibukun Gbenga Ajayi^{1,2}, Oluwapelumi Omomayowa Olufade²

¹Namibia University of Science and Technology, Namibia; ²Federal University of Technology, Minna, Nigeria

TREE-LEVEL FUEL CONNECTIVITY TO ASSESS CROWN FIRE POTENTIAL BY UAS-BASED PHOTOGRAMMETRY

Monica Herrero-Huerta¹, David Sanchez-Jimenez¹, David Hernandez-Lopez², Diego Gonzalez-Aguilera¹

¹University of Salamanca, Spain; ²University of Castilla-La Mancha

Citrus Unshiu Monitoring using UAV and Deep Learning: For Semantic Segmentation of Citrus Tress

Hajin Moon¹, Euiik Jeon^{1,2}, Dongki Chung¹

¹AI team, Innopam Inc., Seoul, South Korea; ²Dept. Urban big data convergence, University of Seoul, Seoul, South Korea

INDIVIDUAL TREE SEGMENTATION FROM UAV LIDAR BY IMPROVED RANSAC

Tomohiro Mizoguchi¹, Noboru Minakawa², Daisuke Tsukano², Hideki Ogawa³, Keiji Endo³

¹Dept. of Computer Science, College of Engineering, Nihon University, Fukushima, Japan; ²Owada Survey Design Co., Ltd, Fukushima, Japan; ³Fukushima Prefectural Forestry Research Centre, Fukushima, Japan

Comparing different geomatic methodologies for urban forest inventory. The case study of the Ascolana Tenera olive tree in Ascoli Piceno (Italy).

Stefano Chiappini¹, Enrico Maria Lodolini³, Mattia Balestra², Eva Savina Malinverni¹, Davide Neri², Ernesto Marcheggiani⁴, Roberto Pierdicca¹

¹Università Politecnica delle Marche, Dipartimento di Ingegneria Civile, Edile e dell'Architettura, Italy; ²Università Politecnica delle Marche, Department of "Scienze Agrarie, Alimentari e Ambientali"; ³CREA - Centro di Ricerca Olivicoltura, Frutticoltura e Agrumicoltura Via Fioranello, 52 - 00134 Roma, Italy; ⁴Division of Forest, Nature, and Landscape, Department of Earth and Environmental Sciences, KU Leuven

5-UAV-based mapping 5: UAV Application in Agriculture and Forestry (2)

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · *Location:* Blue Nile
Session Chair: Ayman Habib, Purdue University, United States of America

MONITORING OF REINTRODUCED RARE PLANTS USING UAV DATA

Anna Denisova¹, Ludmila Gorodetskaya¹, Ludmila Kavelenova¹, Alexander Pomogaybin², Irina Rusaeva Rusaeva², Victor Fedoseev¹

¹Samara National Research University, Russian Federation; ²Botanical Garden of Samara University

Seamline Optimization for UAV Image Mosaicking Using Geometry of Triangulated Irregular Network

Sung-Joo Yoon, Taejung Kim

Inha University, Korea, Republic of (South Korea)

Proceedings in UAS-Assisted Bridge Inspections: RTK-Based Photogrammetric Reconstruction and Spatial Filtering

Erkki Tobias Bartczak, Maarten Bassier, Maarten Vergauwen

KU Leuven, Belgium

INDIVIDUAL TREE-BASED FOREST SPECIES DIVERSITY ESTIMATION USING UAV-BORNE HYPERSPPECTRAL AND LIDAR DATA

Zhaoju Zheng¹, Xiuwen Li^{1,2}, Cong Xu^{1,2}, Ping Zhao^{1,2}, Junhua Chen^{1,2}, Jinchun Wu^{1,2}, Xueming Zhao^{1,2}, Xuan Mu^{1,2}, Dan Zhao^{1,2}, Yuan Zeng^{1,2}

¹State Key Laboratory of Remote Sensing Science, Aerospace Information Research Institute, Chinese Academy of Sciences, Beijing, China; ²University of Chinese Academy of Sciences, Beijing, China

AI-PC - 1: AI-Based Point Cloud and Image Understanding 1

Time: Wednesday, 06/Sept/2023: 1:30pm - 3:00pm · *Location:* Pavilion-Hall1
Session Chair: Yiping Chen, Sun Yat-sen University, China, People's Republic of
Session Chair: Leila Hashemi Beni, NC A&T State University, United States of America

CHATGPT FOR POINT CLOUD 3D OBJECT PROCESSING

Jesus Balado Frias¹, Giang Nguyen²

¹University of Vigo, Spain; ²Slovak University of Technology

Relative pose determination algorithm for space on-orbit close range autonomous operations using LiDAR.

Cristopher Castro-Traba, Gabriel Fontenla-Carrera, Luis Miguel González-deSantos, Higinio González-Jorge

Research Institute of Physics and Aerospace Science, University of Vigo

An IMPROVED IMAGE REGISTRATION ALGORITHM FOR THERMAL INFRARED AND PANCHROMATIC IMAGE BASED ON GEOMETRIC STRUCTURAL PROPERTIES

Junfeng Xie^{1,2,3,4}, Xing Lv^{1,2}, Cun Chu³, Ren Liu^{1,4}, Fan Mo^{1,4}, Binbo Li^{1,5}, Chenglong Wang⁶

¹Land satellite remote sensing application center, China, People's Republic of; ²China University of Mining and Technology;

³Liaoning Technical University; ⁴Hohai University; ⁵Capital Normal University; ⁶Wuhan University

PAN-SUNET: UTILITY CORRIDOR UNDERSTANDING USING SPATIAL LAYOUT CONSISTENCY

Maryam Jameela, Gunho Sohn

York University, Canada

What's new in Deep Learning

Ahmed Awady

Esri, United Arab Emirates

2-GI4SDGS: Extracting geospatial information for monitoring SDGs

Time: Wednesday, 06/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall3

Session Chair: Maria Antonia Brovelli, Politecnico di Milano, Italy

Session Chair: Qihao Weng, Hong Kong Polytechnic University, Hong Kong S.A.R. (China)

MAPPING LOCAL CLIMATE ZONES WITH MULTIPLE GEODATA AND THE OPEN DATA CUBE: INSIGHTS OF DOMAIN USER REQUIREMENTS AND OUTLOOKS OF THE LCZ-ODC PROJECT

Alberto Vavassori¹, Maria Antonia Brovelli¹, Emanuele Capizzi¹, Giovanna Venuti¹, Barbara Betti¹, Mario Siciliani de Cumis², Patrizia Sacco², Deodato Tapete²

¹Department of Civil and Environmental Engineering, Politecnico di Milano, Milano Leonardo. Milan, Italy; ²Italian Space Agency (ASI), Matera, Italy

CAPACITY BUILDING FOR GIS-BASED SDG INDICATOR ANALYSIS WITH GLOBAL HIGH-RESOLUTION LAND COVER DATASETS

Daniele Oxoli¹, Sheryl Rose Reyes², Shu Peng³, Maria Antonia Brovelli¹, Serena Coetzee⁴, Ivana Ivanova⁵, Julia Anna Leonardi¹, Darshna Rawal⁶, Giuseppina Vacca⁷, Sisi Zlatanova⁸

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DATA LAKES FOR CRISIS MANAGEMENT

Andrija Krtalić, Ana Kuveždić Divjak, Andrea Miletić

University of Zagreb Faculty of Geodesy, Croatia

How the Human Needs Evolving To SDGs

ORHAN ALTAN

ITU-ISPRS, Türkiye

Geospatial information-enabled SDGs monitoring: methodology and enabling factors for a UN best practice

Jun Chen^{1,2}, Shu Peng¹

¹ISPRS; ²National Geomatics Center of China, China, People's Republic of

4-Semantic 3D 4: Close range and tracking 4

Time: Wednesday, 06/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall2

Session Chair: Uwe SÖRGEL, University of Stuttgart, Germany

SEGMENTATION OF INDUSTRIAL BURNER FLAMES: A COMPARATIVE STUDY FROM TRADITIONAL IMAGE PROCESSING TO MACHINE AND DEEP LEARNING

Steven Landgraf, Markus Hillemann, Moritz Aberle, Valentin Jung, Markus Ulrich

Karlsruhe Institute of Technology (KIT), Germany

Integrating motion priors for end-to-end attention-based Multi-object tracking

Rasho Ali, Max Mehlretter, Christian Heipke

Leibniz Universität Hannover, Germany

SEMANTIC ENRICHMENT OF 3D POINT CLOUDS USING 2D IMAGE SEGMENTATION

Abhishek Rai¹, Noopur Srivastava¹, Kourosh Khoshelham², Kamal Jain¹

¹Department of Civil Engineering, Indian Institute of Technology Roorkee, India; ²Department of Infrastructure Engineering, The University of Melbourne, Parkville, Victoria, Australia

VEHICLE POSE AND SHAPE ESTIMATION IN UAV IMAGERY USING A CNN

Sara El Amrani Abouelassad, Max Mehlretter, Franz Rottensteiner

Leibniz Universität Hannover, Germany

9-Satellite Remote Sensing 9: Land-Use Land-Cover Classification

Time: Wednesday, 06/Sept/2023: 3:30pm - 5:00pm · *Location:* White Nile

Session Chair: Yahya Zakaria Mohasseb, Arab Academy for Science, Technology & Maritime Transport, Egypt

Session Chair: Ahmed Shaker, Toronto Metropolitan University, Canada

THE EFFECTS OF LAND COVER CHANGES ON LAND SURFACE TEMPERATURES

Nagihan Aslan¹, Dilek Koç San²

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Land Use and Land Cover simulation based on integration of artificial neural networks with cellular automata-Markov chain models applied to El-Fayoum Governorate

Islam Atef¹, Wael Ahmed², Ramadan H. Abdel-Maguid¹, Moustafa Baraka³, Walid DARWISH², Ahmad M. Senousi²

¹Civil Engineering Department, Faculty of Engineering, Fayoum University, Fayoum 63514, Egypt; ²Public Works Department, Faculty of Engineering, Cairo University, Giza 12613, Egypt; ³Civil Engineering Program, German University in Cairo, Cairo, Egypt

Machine learning-based all-sky 1 km MODIS land surface temperature reconstruction considering cloud effects

Dongjin Cho¹, Dukwon Bae¹, Cheolhee Yoo², Jungho Im¹, Yeonsu Lee¹, Siwoo Lee¹, Seonyoung Park³

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²Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong;

³Department of Applied Artificial Intelligence, Seoul National University of Science and Technology, Seoul, Republic of Korea

Predicting the Impact of Rapid Urbanisation on Urban Groundwater Level Variations and analyzing Climate Dynamics in Punjab's Cities, India: An Approach towards Sustainable Cities

Shubham Awasthi¹, Kamal Jain¹, Koyel Sur², Ajanta Goswami¹

¹Indian Institute of Technology Roorkee, Uttarakhand, India; ²Punjab Remote Sensing, Ludhiana, Punjab, India

Deep Learning Multi Task Road Extractor Model For Parcel Extraction and Crop Classification Using Knowledge Based NDVI Time Series Data

Ammar Dali, Kamal Jain, Siddhartha Khare, Sunni Kanta Prasad Kushwaha

Indian Institute of Technology Roorkee, India

AI-PC - 2: AI-PC: AI-Based Point Cloud and Image Understanding 2

Time: Wednesday, 06/Sept/2023: 3:30pm - 5:00pm · *Location:* Pavilion-Hall1
Session Chair: Yiping Chen, Sun Yat-sen University, China, People's Republic of
Session Chair: Bisheng Yang, Wuhan University, China, People's Republic of

Towards High Resolution Feature Mapping With Sentinel-2 Images

Jeewantini Kapilaratne, Satomi Kakuta, Shinichi Kaneta
Asia Air Survey Corporation Limited, Japan

HACR-MDL: HANDWRITTEN ARABIC CHARACTER RECOGNITION MODEL USING DEEP LEARNING

Mazen Nabil Elagamy, Miar Mamdouh Khalil, Esraa Ismail
College of Engineering and Technology, Arab Academy for Science, Technology, and Maritime Transport (AASTMT)

An Investigation of Super-Resolution for Cross-Domain Building Extraction using Transformer

Weitao Yue, Xiaowei Zhao
Intelligent Control & Smart Energy (ICSE) Research Group, School of Engineering, University of Warwick, Coventry, CV4 7AL, U.K.

Monocular depth estimation for night-time images

Nour Khalefa, Nasser El-Sheimy
university of Calgary, Canada

Optical Imagery and LiDAR Integration for Inundation Mapping Under Canopy Environments

Steve McArdle¹, Leila Hashemi Beni²
¹VeriDaaS Corporation; ²NC A&T State University, United States of America

1-Sensor orientation 1: Sensor orientation and calibration for mapping and navigation purposes 1

Time: Thursday, 07/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall6

Session Chair: Henry Meißner, German Aerospace Center, Germany

A Self-contained Navigation System for Smartwatch Using PDR with CNN-Based Motion and Speed Models Aided

CHI-HSIN HUANG, YANG-EN LU, CHIN-YANG LIN, TING-CHUN WU, KAI-WEI CHIANG

National Cheng Kung University, Taiwan

Relative Geometric Correction of Multiple Satellite Images by Rigorous Block Adjustment

Seunghwan Ban, Taejung Kim

Dept. of Geoinformatic engineering, Inha University

ESTIMATION OF SENSOR OFFSETS FOR A UAV PLATFORM USING TIEPOINTS ONLY

Cheolwook Kim¹, Pyeong-chaе Lim¹, Taejung Kim²

¹3DLabs, Korea, Republic of Korea; ²Dept. of Geoinformatic Engineering, Inha University, Korea, Republic of Korea

MULTI-IMU SENSORS FAULT-DETECTION BASED ON ADAPTIVE LEAST-SQUARE WINDOW TECHNIQUE

Shady Zahran, Maher Tarek, Ahmed Elbanna, Ahmed Mostafa

Arab Academy for Science, Technology & Maritime Transport, Egypt

Research on Named Entity Recognition Methods for Urban Underground Space Disasters Based on Text Information Extraction

ZhaoWen Li¹, XueDong Zhang^{1,2}

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1-SPACE 1: SPACE - Spectral Remote Sensing in the era of AI, Cloud and Edge Computing 1

Time: Thursday, 07/Sept/2023: 8:30am - 10:00am · *Location:* Morgana
Session Chair: Daniele Cerra, German Aerospace Center (DLR), Germany

SEMANTIC SEGMENTATION OF REMOTE SENSING IMAGERY USING AN ENHANCED ENCODER-DECODER ARCHITECTURE

Nour Aburaed¹, Mina Al-Saad¹, Mohammed Q. Alkhatib¹, Mohammad Sami Zitouni¹, Saaed Al Mansoori², Hussain Al-Ahmad¹

¹University of Dubai, United Arab Emirates; ²Mohammed Bin Rashid Space Centre, United Arab Emirates

ESTIMATING COFFEE CROP PARAMETERS THROUGH MULTISPECTRAL IMAGING AND MACHINE LEARNING ALGORITHMS

Fernando Vasconcelos Pereira¹, Vinicius Silva Werneck Orlando¹, George Deroco Martins², Eduardo Soares Nascimento¹, Aline Barroca Marra¹, Maria de Lourdes Bueno Trindade Galo¹

¹São Paulo State University, Brazil; ²Federal University of Uberlândia, Brazil

Hyperspectral Imaging in preservation of Croatia's Historic Trees: A Case Study of Dedek Oak in Maksimir Park

Luka Babić, Vanja Miljković, Iva Odak, Almin Đapo

Faculty of Geodesy - University of Zagreb, Croatia

15-Satellite Remote Sensing 15: Remote Sensing and Mapping Technologies for Urban Studies and Infrastructure Development 15

Time: Thursday, 07/Sept/2023: 8:30am - 10:00am · *Location:* White Nile

Session Chair: Shabnam Jabari, University of New Brunswick, Canada

EXPLORING URBAN FUNCTIONAL ZONES BASED ON MULTI-SOURCE SEMANTIC KNOWLEDGE AND CROSS MODAL NETWORK

jiage chen¹, shu peng¹, hongwei zhang¹, shangwei lin¹, wenzhi zhao²

¹National Geomatics Center of China, China, People's Republic of; ²Beijing Normal University

KEY TECHNOLOGIES FOR 1:10,000 RAPID MAPPING BASED ON GF-7 SATELLITE

Jianwei Liu, Jianjun Liu, Bianli Zhao, Xue He, Shiquan Zhao, Chenchen Wu

National Geomatics Center of China, China, People's Republic of

On the assessment of instance segmentation for the automatic detection of specific constructions from very high resolution airborne imagery

Pedro Achanccaray Diaz¹, Markus Gerke¹, Leonhard Wesche², Sebastian Hoyer², Klaus Thiele², Ulrich Knufinke³, Christina Krafczyk³

¹Institute of Geodesy and Photogrammetry, Technical University of Braunschweig, Germany; ²Institute of Preservation of Buildings and Structure, Technical University of Braunschweig, Germany; ³Lower Saxony State Office for the Preservation of Monuments, Germany

Which Satellite should be used for Mapping

Karsten Jacobsen

Leibniz Universitaet Hannover, Germany

4-Laser Scanning 2023 4: Object Detection & Segmentation 4

Time: Thursday, 07/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall3

Session Chair: Jan Boehm, University College London, United Kingdom

Towards accurate instance segmentation in large-scale LiDAR point clouds

Binbin Xiang¹, Torben Peters¹, Theodora Kontogianni¹, Frawa Vetterli¹, Stefano Puliti², Rasmus Astrup², Konrad Schindler¹

¹ETH Zürich, Switzerland; ²Norwegian Institute of Bioeconomy Research (NIBIO)

Towards Assessing Sandstone Surface Moisture and Degradation Level from Radiometrically Corrected TLS Intensity Data

Helena Laasch, Tomislav Medic, Andreas Wieser

ETH Zürich, Switzerland

Ground filtering of co-registered mobile and stationary laser scans by using superpoints in RANSAC planes

Dominik Simon Stütz¹, Jianping Li^{2,3}, Jianzhu Huai², Dimitri Bulatov¹

¹Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB, Germany; ²State Key Lab of Info Engineering in Surveying, Mapping, and Remote Sensing, Wuhan University; ³Electrical and Electronic Engineering, Nanyang Technological University, Singapore

RAPID AND AUTOMATED BODY MEASUREMENT OF CATTLE BASED ON STATISTICAL SHAPE MODEL

Yuzhi Bao, Hexiao Lu, Jianhuan Wu, Jie Lei, Jialong Zhang, Xinying Luo, Hao Guo

China Agricultural University, China, People's Republic of

AI-PC - 3: AI-PC: AI-Based Point Cloud and Image Understanding 3

Time: Thursday, 07/Sept/2023: 8:30am - 10:00am · *Location:* Pavilion-Hall1

Session Chair: Yiping Chen, Sun Yat-sen University, China, People's Republic of

Session Chair: Zhizhong Kang, China University of Geosciences (Beijing), China, People's Republic of

Object Detection and localisation for BIM enrichment

Sam De Geyter^{1,2}, Maarten Bassier¹, Heinder De Winter^{1,3}, Maarten Vergauwen¹

¹KU Leuven; ²MEET HET BV; ³DIRK BAUWENS NV

AUTOMATED DETECTION OF ROAD PAVEMENT CRACKS FROM MOBILE LASER SCANNING DATA USING A MODIFIED GRAPH CONVOLUTION NETWORK

Huifang Feng¹, Jonathan Li², Yiping Chen Chen³, Lingfei Ma⁴

¹Xiamen University, China; ²University of Waterloo, Canada; ³Sun Yat-sen University, China; ⁴Central University of Finance and Economics, China

YUTO: A Large Scale Aerial LiDAR Data Set for Semantic Segmentation

Sunghwan Yoo, Connie Ko, Gunho Sohn, Hyungju Lee

York University, Canada

Monocular depth estimation for night-time images

Nour Khalefa, Nasser El-Sheimy

university of Calgary, Alberta, Canada

On the accuracy of yolov8-CNN regarding detection of humans in nadir aerial images for search and rescue applications

Julian Berndt, Henry Meißner, Thomas Kraft

German Aerospace Center, Germany

16-Satellite Remote Sensing 16: Water Quality and Aquatic Ecosystem Monitoring 16

Time: Thursday, 07/Sept/2023: 10:30am - 12:00pm · Location: White Nile

Session Chair: Bahram Salehi, SUNY ESF, United States of America

Integrating optical and radar imagery to enhance river drought monitoring

Stefano Conversi¹, Daniela Carrion¹, Alessandra Norcini², Monica Riva¹

¹Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano, Piazza Leonardo Da Vinci 32, 20133 Milano, Italy; ²Struttura Natura e Biodiversità, Direzione Generale Territorio e Sistemi Verdi, Regione Lombardia, Piazza Città di Lombardia 1, 20124 Milano, Italy

WATER QUALITY PARAMETERS PREDICTION OF TIGRIS RIVER USING SENTINEL-2 DATA AND LASSO REGRESSION

Suhaib Saad¹, Adel Elshazly², Ahmad Senousi², Walid Darwish², Moustafa Baraka³, Wael Ahmed²

¹Ministry of Environment, Karada, Baghdad, Iraq; ²Public Works Department, Faculty of Engineering, Cairo University, Egypt;

³German University in Cairo (GUC), Egypt

A Novel Hybrid Model Based on CNN and Multi-scale Transformer for Extracting Water Bodies from High Resolution Remote Sensing Images

Qi Zhang¹, Xiangyun Hu^{1,2,3}, Yao Xiao⁴

¹School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China.; ²Hubei LuoJia Laboratory, Wuhan University, Wuhan, China.; ³Institute of Artificial Intelligence in Geomatics, Wuhan University, Wuhan, China.; ⁴Wuhan Geomatics Institute, Wuhan, China.

Automatic non-residential built-up mapping over national extents with a sentinel-2 image segmentation model trained with ancillary census data

Diogo Duarte¹, Cidália Fonte^{1,2}

¹Institute for Systems Engineering and Computers at Coimbra (INESC Coimbra), University of Coimbra, Coimbra, Portugal;

²University of Coimbra, Department of Mathematics, Coimbra, Portugal

SYNERGY OF ADVANCED PROCESSING TECHNIQUES USING COPERNICUS SAR AND OPTICAL SATELLITE IMAGERY TO DETECT GROUND DISPLACEMENTS: THE CASE STUDIES OF PYRGOS AND PAREKKLISIA VILLAGES IN CYPRUS

Marios Tzouvaras^{1,2}, Stavroula Alatzas³, Maria Prodromou^{1,2}, Christos Theocharidis^{1,2}, Kyriaki Fotiou^{1,2}, Athanasios Argyriou¹, Constantinos Loupasakis⁴, Alexis Apostolakis³, Zampela Pittaki¹, Mariza Kaskara³, Charalampos Kontoes³, Diofantos Hadjimitsis^{1,2}

¹ERATOSTHENES Centre of Excellence, Limassol 3012, Cyprus; ²Department of Civil Engineering and Geomatics, Cyprus University of Technology, Limassol 3036, Cyprus; ³National Observatory of Athens, Operational Unit BEYOND Centre for Earth Observation Research and Satellite Remote Sensing IAASARS/NOA, GR-152 36 Athens, Greece; ⁴Laboratory of Engineering Geology and Hydrogeology, School of Mining and Metallurgical Engineering, National Technical University of Athens, Zografou, 15780 Athens, Greece

2-Smart Forests 2: Systems and methods at different scales 2

Time: Thursday, 07/Sept/2023: 10:30am - 12:00pm · *Location:* Babylon
Session Chair: Roberto Pierdicca, Università Politecnica delle Marche, Italy

ACCURACY EVALUATION OF ICESAT-2 ATL08 IN FINLAND

Xu Wang, Xinlian Liang

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China, People's Republic of

DETECTION OF SILVER BIRCH GROWTH DYNAMICS AND TIMING WITH DENSE SPATIO-TEMPORAL LIDAR TIME-SERIES

Mariana Campos, Venla Valve, Anna Shcherbacheva, Yunsheng Wang, Rami Echriti, Eetu Puttonen

Finnish Geospatial Research Institute, National Land Survey of Finland

CLASSIFICATION OF TREES IN HYPERSPECTRAL CANOPY DATA USING MACHINE LEARNING: COMPARATIVE ANALYSIS OF FOREST STRUCTURE COMPLEXITY

F. Galdames¹, P. González¹, F. Magni-Pérez¹, S.M. Funk¹, F. Lepín³, R. Saavedra², H.J. Hernández³

¹Lemu Earth SpA, Avenida Manquehue Sur N°520, of. 205, Las Condes, Santiago; ²Arauco S.A, Concepción, Chile & ETSI Montes, Forestal y del Medio Natural, Universidad Politécnica de Madrid; ³Geomatics and Landscape Ecology Lab, Forestry and Nature Conservation Faculty, Universidad de Chile, Chile

ESTIMATING DRY MATTER AND TOTAL SOLUBLE CONTENT IN APPLES USING A COMMERCIAL PORTABLE HYPERSPECTRAL IMAGING SYSTEM

Tomislav Medic

ETH Zurich, Switzerland

AUTOMATIC VIDEO DETECTION FOR GOLDEN MONKEYS IN SHENNONGJIA NATIONAL PARK, CHINA

Haigang Sui¹, Tianyi Wei¹, Jindi Wang¹, Li Hua², Na Xiong¹

¹State Key Laboratory of Information Engineering in Surveying, Wuhan University, Wuhan, China; ²College of Resources and Environment, Huazhong Agricultural University, Wuhan, China

LOW-COST WORKFLOW FOR 3D URBAN FOREST MANAGEMENT

Chiara Chioni¹, Arnadi Murtiyoso², Sara Favargiotti¹, Giovanna A. Massari¹

¹Dept. of Civil, Environmental and Mechanical Engineering (DICAM), University of Trento, Trento, Italy; ²Forest Resources Management (FORM), Inst. of Terrestrial Ecosystems, Dept. of Environmental Systems Science, ETH Zürich, Zürich, Switzerland

2-SPACE 2: SPACE - Spectral Remote Sensing in the era of AI, Cloud and Edge Computing 2

Time: Thursday, 07/Sept/2023: 10:30am - 12:00pm · *Location:* Morgana
Session Chair: Daniele Cerra, German Aerospace Center (DLR), Germany

EXPLORING VERY HIGH-RESOLUTION REMOTE SENSING FOR ASSESSING LAND SURFACE TEMPERATURE OF DIFFERENT URBAN LAND COVER PATTERNS

Shushanik Asmaryan¹, Vahagn Muradyan¹, Andrey Medvedev¹, Rima Avetisyan¹, Azatuhi Hovsepyan¹, Anahit Khlgatyan¹, Grigor Ayyvazyan¹, Fabio Dell'Acqua²

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MAPPING BEE-KEEPING FOREST PLANTS FROM MEDIUM SPATIAL RESOLUTION MULTISPECTRAL SATELLITE DATA

Athanasios Antonopoulos¹, Olympia Gounari², Alexandros Falagas², Antonios Tsagkarakis¹, Konstantinos Karantzas²

¹Agricultural University of Athens, Greece; ²National Technical University of Athens, Greece

Effect Analysis of Motion Compensation on Imaging Quality of Spaceborne Coded Aperture Hyperspectral Imager

Zhen Li, Xianfei Qiu, Shaocong Liu, Tinghao Liu

Institute of Remote Sensing Satellite, China Academy of Space Technology, China

AI-PC - 4: AI-PC: AI-Based Point Cloud and Image Understanding 4

Time: Thursday, 07/Sept/2023: 10:30am - 12:00pm · *Location:* Pavilion-Hall1

Session Chair: Yiping Chen, Sun Yat-sen University, China, People's Republic of

Session Chair: Hongchao Fan, Norwegian University of Science and Technology, Norway

A CLICK-BASED INTERACTIVE SEGMENTATION NETWORK FOR INSTANCE SEGMENTATION OF POINT CLOUDS

Wentao Sun¹, Jonathan Li², Zhipeng Luo³, Lingfei Ma⁴, Yiping Chen⁵

¹University of Waterloo, Canada; ²University of Waterloo, Canada; ³Zhejiang Normal University, China; ⁴Central University of Finance and Economics, China; ⁵Sun Yat-sen University, China

CrossI2P : an attention-based cross-modality panoramic image to point cloud place recognition method

Yuhao Li, Zhen Dong, BiSheng Yang

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China

Using machine learning techniques to filter vegetation in colored point clouds of soil surfaces

Oliver Grothum, Anne Bienert, Mikesch Blümlein, Anette Eltner

TU Dresden / Institut für Photogrammetrie und Fernerkundung, Germany

On the semantic segmentation and validation of electrical substations

maarten bassier

KU Leuven, Belgium

EVALUATIONS OF FILTERED GROUND POINTS FROM NAIP PHOTOGRAMMETRICALLY DERIVED POINT CLOUDS

Jung kuan Liu, Samantha Arundel, Ethan Shavers

USGS, United States of America