Date: Tuesday, 22/Oct/2024

9:00am - 10:30am
Room: Sirius

TU8 - Session 1/2: AI for Geospatial Science
Location: Room: Sirius
Session Chair: Zhilin Li

9:00am - 10:30am
Room: Pleiades

TU9 -Session 1/2: 3D spatial modelling and intelligence for scene-realistic analysis and digital twin
Location: Room: Pleiades
Session Chair: Bisheng YANG

9:00am - 10:30am
Room: Orion

TU3: Uncovering Earth System Dynamics with multivariate EO Data and AI
Location: Room: Orion
Session Chair: Martin Reinhardt
Session Chair: Anca Anghelea

9:00am - 10:30am
Room: Rottnest Island

TU1: Approaches for simplifying 3D data exchange between systems
Location: Room: Rottnest Island
Session Chair: Rob Atkinson

9:00am - 10:30am
Room: Garden Island

TU7 Session 1/2: Collecting data in the field with free & open source geospatial tools: QGIS, QField, and Mergin Maps
Location: Room: Garden Island
Session Chair: John Bryant
Session Chair: Grant Boxer

10:30am - 12:30pm
Room: Abrolhos Islands

Editorial Board meeting 1: GSIS (10:30-12:30) - By invitation only
Location: Room: Abrolhos Islands

11:00am - 12:30pm
Room: Sirius

TU8 - Session 2/2: AI for Geospatial Science
Location: Room: Sirius
Session Chair: Zhilin Li

11:00am - 12:30pm
Room: Pleiades

TU9 -Session 2/2: 3D spatial modelling and intelligence for scene-realistic analysis and digital twin
Location: Room: Pleiades
Session Chair: Bisheng YANG

11:00am - 12:30pm
Room: Orion

TU6: Creating Immersive GIS Experiences with XR Technology and Real-World Data
Location: Room: Orion
Session Chair: Morakot Pilouk

11:00am - 12:30pm
Room: Rottnest Island

TU5: Advancing Air Quality Research and Public Awareness Through Innovative Geospatial Technologies
Location: Room: Rottnest Island
Session Chair: Maria Antonia Brovelli
Session Chair: EVA SAVINA MALINVERNI

11:00am - 12:30pm
Room: Garden Island

TU7 Session 2/2: Collecting data in the field with free & open source geospatial tools: QGIS, QField, and Mergin Maps
Location: Room: Garden Island
Session Chair: John Bryant
Session Chair: John Duncan

1:30pm - 3:00pm
Room: Plenary

Opening - Spatial Information to: Keynote: Renee Bartolo
Location: Room: Plenary
Session Chair: Sisi Zlatanova
Session Chair: Maria Antonia Brovelli

3:00pm - 3:30pm
Conference Venue

Afternoon Tea: .
Location: Conference Venue

3:30pm - 5:00pm
Room: Sirius

WG 2 - Session 1: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis
Location: Room: Sirius
Session Chair: Mahmoud Reza Delavar
Session Chair: Renate Nicole Thiede

3:30pm - 5:00pm
Room: Pleiades

WG 11: Cultural Heritage Visualization and Virtual Restoration
Location: Room: Pleiades
Session Chair: Miaole Hou
Session Chair: Grazia Tucci

3:30pm - 5:00pm
Room: Orion

WG 9 - Session 1: Spatially Enabled Urban and Regional Digital Twins
Location: Room: Orion
Session Chair: Mila Koeva

3:30pm - 5:00pm
Room: Rottnest Island

WG 6 - Session 1: Human Behaviour and Spatial Interactions
Location: Room: Rottnest Island
Session Chair: Wei Huang

3:30pm - 5:00pm
Room: Garden Island

ICWG IV/III: Global Mapping for SDGs
Location: Room: Garden Island
Session Chair: Ruofei Zhong
Session Chair: Yiping Chen

5:30pm - 7:30pm
Conference Venue

Opening Reception: Social Event
Location: Conference Venue

Date: Wednesday, 23/Oct/2024

8:30am - 10:00am
Room: Plenary

Keynote 2: Ahi Saipaia and Karen Joyce
Location: Room: Plenary

8:30am - 10:00am
Room: Abrolhos Islands

Editorial Board meeting 2: IJGI (8:30-10:30) - By invitation only.
Location: Room: Abrolhos Islands
Session Chair: Petar Jeremic

10:00am - 10:30am
Conference Venue

Morning Tea - Poster Session 1: WG 1
Location: Conference Venue

10:30am - 12:00pm **Room: Sirius**	**WG 2 - Session 2: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis** Location: **Room: Sirius** Session Chair: **Inger Fabris-Rotelli** Session Chair: **Rene Stander**
10:30am - 12:00pm **Room: Pleiades**	**WG 1 - Session 1: Spatial Data Representation and Interoperability** Location: **Room: Pleiades** Session Chair: **Filip Biljecki**
10:30am - 12:00pm **Room: Orion**	**FOSS4G - Session 1: FOSS4G - Perth** Location: **Room: Orion** Session Chair: **Ivana Ivanova**
10:30am - 12:00pm **Room: Rottnest Island**	**ICWG IV/III/II - Session 1: Openness in Geospatial Science and Remote Sensing** Location: **Room: Rottnest Island** Session Chair: **Anca Anghelea** Session Chair: **Martin Reinhardt**
12:00pm - 1:00pm **Room: Sirius**	**WG 2 - Session 3: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis** Location: **Room: Sirius** Session Chair: **Nicholas Hamm** Session Chair: **Renate Nicole Thiede**
12:00pm - 1:00pm **Room: Pleiades**	**WG 1 - Session 2: Spatial Data Representation and Interoperability** Location: **Room: Pleiades** Session Chair: **Pawel Boguslawski**
12:00pm - 1:00pm **Room: Orion**	**FOSS4G - Session 2: FOSS4G - Perth** Location: **Room: Orion** Session Chair: **Bryan Boruff**
12:00pm - 1:00pm **Room: Rottnest Island**	**WG 5: Extended Reality and Visual Analytics** Location: **Room: Rottnest Island** Session Chair: **Hongping Zhang** Session Chair: **Ori Gudes**
1:00pm - 2:00pm **Conference Venue**	**Lunch Wed** Location: **Conference Venue**
2:00pm - 3:30pm **Room: Sirius**	**WG 1 - Session 3: Spatial Data Representation and Interoperability** Location: **Room: Sirius** Session Chair: Elisabetta Colucci
2:00pm - 3:30pm **Room: Pleiades**	**WG 9 - Session 2: Spatially Enabled Urban and Regional Digital Twins** Location: **Room: Pleiades** Session Chair: **Mila Koeva**
2:00pm - 3:30pm **Room: Orion**	**FOSS4G - Session 3: FOSS4G - Perth** Location: **Room: Orion** Session Chair: **John Duncan**
2:00pm - 3:30pm **Room: Rottnest Island**	**WG 2 - Session 4: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis** Location: **Room: Rottnest Island** Session Chair: **Inger Fabris-Rotelli** Session Chair: **Rene Stander**
2:00pm - 3:30pm **Room: Abrolhos Islands**	**Organising Committee Panel 1: (by invitation only)** Location: **Room: Abrolhos Islands**
3:30pm - 4:00pm **Conference Venue**	**Afternoon Tea - Poster Session 2: WG 2 and WG 3** Location: **Conference Venue**
4:00pm - 5:30pm **Room: Sirius**	**WG 2 - Session 5: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis** Location: **Room: Sirius** Session Chair: **Mahmoud Reza Delavar** Session Chair: **Renate Nicole Thiede**
4:00pm - 5:30pm **Room: Pleiades**	**Panel Discussion 1: The role of international organisations (ISPRS) in the world of AI and Digital Twins** Location: **Room: Pleiades** Session Chair: **Maria Antonia Brovelli** Session Chair: **Petra Helmholz**
4:00pm - 5:30pm **Room: Orion**	**FOSS4G - Session 4: FOSS4G - Perth** Location: **Room: Orion** Session Chair: **Tracey Cousens**
4:00pm - 5:30pm **Room: Rottnest Island**	**ICWG IV/III/II - Session 2: Openness in Geospatial Science and Remote Sensing** Location: **Room: Rottnest Island** Session Chair: **Anca Anghelea** Session Chair: **Martin Reinhardt**
4:00pm - 5:30pm **Room: Abrolhos Islands**	**ISPRS P&RS Editorial Board: Meeting (by invitation only)** Location: **Room: Abrolhos Islands** Session Chair: **Qihao Weng**
5:30pm - 6:30pm **Room: Rottnest Island**	**ISPRS Student Consortium (ISPRS: Networking Hour!** Location: **Room: Rottnest Island** This event aims to provide an interacting platform to the students, young professionals and board members of the ISPRS Student Consortium (ISPRS SC) attending the symposium. The idea is to make the attendees aware about different student organizations available, the activities they have been doing and ways to involve in these organizations.
5:30pm - 9:00pm **Beerpourium**	**Social event organised by FOSS4G: Social Event** Location: **Beerpourium**

Date: Thursday, 24/Oct/2024

8:30am - 10:00am **Room: Plenary**	**Keynote 3: Wu Chen and Hidenory Fujimura** Location: **Room: Plenary**
10:00am - 10:30am	**DoT/Curtin discussion: (by invitation only)** Location: **Room: Abrolhos Islands**

Room: Abrolhos Islands

Session Chair: **Ralph Talbot-Smith**
Session Chair: **Iain Parnum**

10:00am - 10:30am
Conference Venue

Morning Tea - Poster Session 3: WG 4, WG 5 and WG 6
Location: **Conference Venue**

10:30am - 12:00pm
Room: Sirius

WG 6 - Session 2: Human Behaviour and Spatial Interactions
Location: **Room: Sirius**
Session Chair: **Yan Yingwei**

10:30am - 12:00pm
Room: Pleiades

Mix WG - Session 1: IoT and VR
Location: **Room: Pleiades**
Session Chair: **Stephan Winter**

10:30am - 12:00pm

Room: Orion

UPINLBS Session 1.1: Universal Positioning, Indoor Navigation and Location-Based Services
Location: **Room: Orion**
Session Chair: **Günther Retscher**
Session Chair: **Cheng Yang**

10:30am - 12:00pm

Room: Rottnest Island

WG 9 - Session 3: Spatially Enabled Urban and Regional Digital Twins
Location: **Room: Rottnest Island**
Session Chair: **Ori Gudes**
Session Chair: **Desislava Petrova-Antonova**

10:30am - 12:00pm
Room: Abrolhos Islands

TCIV Business Meeting 1/2: Meeting
Location: **Room: Abrolhos Islands**

12:00pm - 1:00pm
Room: Sirius

WG 4 - Session 1: Data Management for Spatial Scenarios
Location: **Room: Sirius**
Session Chair: **Emmanuel Stefanakis**

12:00pm - 1:00pm
Room: Pleiades

WG 10 - Session 1: Use of human digital twins in allied health and medical education
Location: **Room: Pleiades**
Session Chair: **Roslyn Ward**

12:00pm - 1:00pm

Room: Orion

UPINLBS Session 1.2: Universal Positioning, Indoor Navigation and Location-Based Services
Location: **Room: Orion**
Session Chair: **Amir Allahvirdizadeh**

12:00pm - 1:00pm
Room: Rottnest Island

Mix WG - Session 2: Metaverse and beyond
Location: **Room: Rottnest Island**
Session Chair: **Yongze Song**

12:00pm - 1:00pm
Room: Abrolhos Islands

Organising Committee Panel 2: (by invitation only)
Location: **Room: Abrolhos Islands**

1:00pm - 2:00pm
Conference Venue

Lunch Thu
Location: **Conference Venue**

2:00pm - 3:30pm
Room: Sirius

WG 4 - Session 2: Data Management for Spatial Scenarios
Location: **Room: Sirius**
Session Chair: **Mahmoud Reza Delavar**

2:00pm - 3:30pm

Room: Pleiades

WG 10 - Session 2: Applied Spatial Science for Public Health
Location: **Room: Pleiades**
Session Chair: **Priyanka Singh**
Session Chair: **Bijoy Krishna Handique**

2:00pm - 3:30pm

Room: Orion

Mix WG - Session 3: 3D Digital Twins
Location: **Room: Orion**
Session Chair: **Dimitri Bulatov**
Session Chair: **Benedikt Kottler**

2:00pm - 3:30pm

Room: Rottnest Island

Mix WG - Session 4: Metaverse and beyond
Location: **Room: Rottnest Island**
Session Chair: **Franz Rottensteiner**
Session Chair: **Qiaoyun Xie**

2:00pm - 3:30pm
Room: Abrolhos Islands

TCIV Business Meeting 2/2: Meeting
Location: **Room: Abrolhos Islands**

3:30pm - 4:00pm
Conference Venue

Afternoon Tea - Poster Session 4: WG 7, WG 8 and WG 9
Location: **Conference Venue**

4:00pm - 5:30pm

Room: Sirius

WG 4 - Session 3: Data Management for Spatial Scenarios
Location: **Room: Sirius**
Session Chair: **Markus Jahn**
Session Chair: **Emmanuel Stefanakis**

4:00pm - 5:30pm
Room: Pleiades

Panel Discussion 2: UN-GGIM: empowering community with ethical use of GeoAI
Location: **Room: Pleiades**
Session Chair: Ivana Ivanova

4:00pm - 5:30pm

Room: Orion

UPINLBS Session 1.3: Universal Positioning, Indoor Navigation and Location-Based Services
Location: **Room: Orion**
Session Chair: **Ruizhi Chen**

4:00pm - 5:30pm

Room: Rottnest Island

WG 10 - Session 3: Applied Spatial Science for Public Health
Location: **Room: Rottnest Island**
Session Chair: **Michelle de Klerk**
Session Chair: **Gaurav Kumar**

6:00pm - 9:30pm
Gage Roads Fremantle (Freo) Brewery

Conference Dinner: Social Event
Location: **Gage Roads Fremantle (Freo) Brewery**

Date: Friday, 25/Oct/2024

8:30am - 10:00am **Room: Plenary**	**Keynote 4: Qihao Weng and Paul Farrell** Location: **Room: Plenary**
10:00am - 10:30am **Conference Venue**	**Morning Tea - Poster Session 5: WG 10, WG 11 and ICWG IV/II** Location: **Conference Venue**
10:30am - 12:00pm **Room: Sirius**	**WG 8 - Session 1: Digital Twins for Mobility and Navigation** Location: **Room: Sirius** Session Chair: **Zhizhong Kang** Session Chair: **Wen Xiao**
10:30am - 12:00pm **Room: Pleiades**	**Panel Discussion 3: Academia-Industry Collaboration for Geospatial Technology and Science Education** Location: **Room: Pleiades** Session Chair: **Anjana Vyas** Session Chair: **Vidushi Patel**
10:30am - 12:00pm **Room: Orion**	**UPINLBS Session 2.1: Universal Positioning, Indoor Navigation and Location-Based Services** Location: **Room: Orion** Session Chair: **Yanyan Xu** Session Chair: **Yan Li**
10:30am - 12:00pm **Room: Rottnest Island**	**WG 3 - Session 1: Geo-computation and Geo-simulation** Location: **Room: Rottnest Island** Session Chair: **Rui Li** Session Chair: **Bi Yu Chen**
12:00pm - 1:00pm **Room: Sirius**	**WG 8 - Session 2: Digital Twins for Mobility and Navigation** Location: **Room: Sirius** Session Chair: **Zhiyong Wang** Session Chair: **Tengteng Qu**
12:00pm - 1:00pm **Room: Pleiades**	**WG 7 - Session 1: Intelligent Systems in Sensor Web and IoT** Location: **Room: Pleiades** Session Chair: **Monica Wachowicz** Session Chair: **Songnian Li**
12:00pm - 1:00pm **Room: Orion**	**UPINLBS Session 2.2: Universal Positioning, Indoor Navigation and Location-Based Services** Location: **Room: Orion** Session Chair: **Lei Wang** Session Chair: **Yue Yu**
12:00pm - 1:00pm **Room: Rottnest Island**	**WG 3 - Session 2: Geo-computation and Geo-simulation** Location: **Room: Rottnest Island** Session Chair: **Bi Yu Chen** Session Chair: **Wei TU**
12:00pm - 1:00pm **Room: Abrolhos Islands**	**Organising Committee Panel 4: (by invitation only)** Location: **Room: Abrolhos Islands**
1:00pm - 2:00pm **Conference Venue**	**Lunch Fri** Location: **Conference Venue**
2:00pm - 3:30pm **Room: Sirius**	**WG 4 - Session 4: Data Management for Spatial Scenarios** Location: **Room: Sirius** Session Chair: **Markus Jahn**
2:00pm - 3:30pm **Room: Pleiades**	**Panel Discussion 4: Industry Use Cases Digital Twin** Location: **Room: Pleiades** Session Chair: **Petra Helmholz** Session Chair: **Sisi Zlatanova**
2:00pm - 3:30pm **Room: Orion**	**UPINLBS Session 2.3: Universal Positioning, Indoor Navigation and Location-Based Services** Location: **Room: Orion** Session Chair: **Chen Wu** Session Chair: **Liang Chen**
2:00pm - 3:30pm **Room: Rottnest Island**	**WG 7 - Session 2: Intelligent Systems in Sensor Web and IoT** Location: **Room: Rottnest Island** Session Chair: **Shishuo Xu** Session Chair: **Songnian Li**
3:30pm - 4:00pm **Conference Venue**	**Afternoon Tea - Poster Session 6: ICWG IV/III/II and UPINLBS** Location: **Conference Venue**
4:00pm - 5:00pm **Room: Plenary**	**Awards and Closing: Spatial Information to Empower the Metaverse** Location: **Room: Plenary**

Presentations

WG 2 - Session 1: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis

Time: Tuesday, 22/Oct/2024: 3:30pm - 5:00pm · *Location:* Room: Sirius
Session Chair: Mahmoud Reza Delavar
Session Chair: Renate Nicole Thiede

3:30pm - 3:50pm

DATA-DRIVEN STRATEGIES FOR AFFORDABLE HOUSING: A HYBRID GENETIC ALGORITHM-MACHINE LEARNING OPTIMIZATION MODEL IN THE MELBOURNE METROPOLITAN AREA

Peyman Jafary[1,2], **Davood Shojaei**[2], **Sara Pishgahi**[3], **Abbas Rajabifard**[2], **Tuan Ngo**[1,4]

[1]Building 4.0 CRC, Caulfield East, Victoria, Australia; [2]Centre for Spatial Data Infrastructures and Land Administration, Department of Infrastructure Engineering, The University of Melbourne, Melbourne, VIC, Australia; [3]Centre for Urban Research, School of Global, Urban and Social Studies, RMIT University, Melbourne, Victoria, Australia; [4]Department of Infrastructure Engineering, The University of Melbourne, Melbourne, Victoria, Australia; pjafary@student.unimelb.edu.au

3:50pm - 4:10pm

An Efficient Attentive-GRU Structure for Uncertainty Modelling of Crowdsourced Human Trajectories Under Building-obscured Urban Scenes

Yue Yu[1], **Zhewei LIU**[1], **Kexin Tang**[1], **Yunjuan Sun**[1], **Shuyu Zhang**[1], **Liang Chen**[2], **Ruizhi Chen**[2]

[1]The Hong Kong Polytechnic University, Hong Kong S.A.R. (China); [2]Wuhan University, LIESMARS, Wuhan (China); Doc_Yue_Yu@163.com

4:10pm - 4:30pm

An entropy-based method to find the appropriate spatial resolution

Nicholas Hamm

University of Nottingham, China, People's Republic of; Nicholas.Hamm@nottingham.edu.cn

4:30pm - 4:40pm

Residential Development Through the Lens of AI: Automating Property Parcel Classification Using Multi-Modal Deep Learning

Warin Chotirosniramit, John Duncan, Bryan Boruff

University of Western Australia; warin.chotirosniramit@uwa.edu.au

4:40pm - 5:00pm

Modified ICP based Framework for 3D Localization and Mapping in GNSS-denied Environments using LiDAR

Mansi Koshti, Surbhi Barnwal, Salil Goel

Indian Institute of Technology Kanpur, India; mansipk22@iitk.ac.in

WG 11: Cultural Heritage Visualization and Virtual Restoration

Time: Tuesday, 22/Oct/2024: 3:30pm - 5:00pm · *Location:* Room: Pleiades
Session Chair: Miaole Hou
Session Chair: Grazia Tucci

3:30pm - 3:50pm

The Framework of Modeling Buddhist Head in 3D with Semantic Information

Yuehan Pan[1,2], Huabiao Li[2], Hongchao Fan[3], Botong Gu[1], Xiaoyu Zhao[4], Miaole Hou[1]

[1]Beijing University of Civil Engineering and Architecture, China, People's Republic of; [2]National Museum of China; [3]Norwegian University of Science and Technology; [4]The Experimental High School Attached to Beijing Normal University; panyh_cn@163.com

3:50pm - 4:10pm

The Concept of Levels of Detail for 3D Niche Models in CityGML

Su Yang[1], Jun Chen[1,2], Miaole Hou[3], Hongchao Fan[4], Songnian Li[5], Yingkui Sun[3]

[1]China University of Mining and Technology (Beijing), China,; [2]National Geomatics Centre of China; [3]Beijing University of Civil Engineering and Architecture; [4]Norwegian University of Science and Technology; [5]Toronto Metropolitan University; houmiaole@bucea.edu.cn

4:10pm - 4:30pm

Improving Underwater Photogrammetric 3D Reconstruction Processing of Shipwreck Sites

Daniel Jordan Adams, Petra Helmholz, David McMeekin, Andrew Woods
Curtin University, Australia; daniel.adams1@curtin.edu.au

4:30pm - 4:50pm

Explore to Mantai – the Ancient Port-city International Trade-hub of Maritime Silk Road in Northern Coast of Sri Lanka

Nelson Wijenayake[1,2], Mingyi DU[1], Jie JIANG[1]

[1]Beijing University of Civil Engineering and Architecture; [2]Scientific Research Development Institute of Technology Australia; nelsonwijenayake@gmail.com

4:50pm - 5:10pm Warning: This presentation lies outside the session time!

A Data Model for Unrecognised Historical Neighbourhood (Case study: Telukbetung, Indonesia)

Shofia Ishar[1], Sisi Zlatanova[1], Yogender Yadav[1,2]

[1]UNSW, School of Art, Design, and Architecture, Sydney; [2]Politecnico di Torino, Italy; shofia.ishar@unsw.edu.au

WG 9 - Session 1: Spatially Enabled Urban and Regional Digital Twins

Time: Tuesday, 22/Oct/2024: 3:30pm - 5:00pm · *Location:* Room: Orion
Session Chair: Mila Koeva

3:30pm - 3:50pm

Digital Twin-based Framework for Heat Stress Calculation

Iván L. Cárdenas-León, Rodrigoandres Morales-Ortega, <u>Mila Koeva</u>, Funda Atun, Karin Pfeffer

University of Twente, The Netherlands; m.n.koeva@utwente.nl

3:50pm - 4:10pm

A Practice of City-scale 3D Geographic Entity Representation and Application in China: The Smart Chongqing City Centre

<u>Yuqi HE</u>[1,2], Jiahui SHENG[3], Xiang LI[1,2], Guang CHEN[1,2], Xiang ZHANG[4], Yiqun CHEN[5]

[1]Chongqing Academy of Surveying and Mapping, Chongqing, 401120, China; [2]Technology Innovation Center for Spatio-temporal Information and Equipment of Intelligent City, Ministry of Natural Resources, Chongqing, 401120, China; [3]Chongqing Planning & Design Institute, Chongqing, 401147, China; [4]National Engineering Research Center of Geographic Information System, School of Geography and Information Engineering, China University of Geosciences, Wuhan, 430074, China; [5]Faculty of Engineering and Information Technology, The University of Melbourne, Parkville, VIC 3010, Australia; yuqi.he@whu.edu.cn

4:10pm - 4:30pm

Construction and Application of Digital Twin Spatial Geographical Digital Base

<u>LINGFANG ZENG</u>, GUANGYAO WANG, JIANXIANG GU

Shanghai Surveying and Mapping Institute; 1161974936@qq.com

4:30pm - 4:40pm

City-Scale Spatial Digital Twins for Rooftop PV Energy Analysis: A Proof-of-Concept Framework

<u>Athenee Ballesteros Teofilo</u>[1], Chayn Sun[1], Marco Amati[2]

[1]School of Science, RMIT University, Australia; [2]School of Global, Urban and Social Studies, RMIT University, Australia; s3752797@student.rmit.edu.au

4:40pm - 5:00pm

A Geodatabase Design for the Development of a Digital Twin for Urban Environments: Case Study from Torino, Italy

<u>Yogender Yadav</u>[1,2], Elisabetta Colucci[3], Piero Boccardo[1], Sisi Zlatanova[2]

[1]Interuniversity Department of Regional and Urban Studies and Planning (DIST), Politecnico di Torino, Italy; [2]School of Built Environment, University of New South Wales (UNSW), Sydney, Australia; [3]Department of Architecture and Design (DAD), Politecnico di Torino, Italy; yogender105@gmail.com

WG 6 - Session 1: Human Behaviour and Spatial Interactions

Time: Tuesday, 22/Oct/2024: 3:30pm - 5:00pm · *Location:* Room: Rottnest Island
Session Chair: Wei Huang

3:30pm - 3:50pm

Exploring the Impact of Mountain Urban Characteristics on Housing Prices: A Study Utilizing Street View Visual Features

Xuhui Cui[1], **Sha Li**[1], **Zhen Li**[2], **Zhaohan Dong**[3]

[1]China University of Mining and Technology, China; [2]Defense Engineering Institute, AMS, PLA, Beijing 100850, China; [3]Central and Southern China Municipal Engineering Design &Research Institute Co.,Ltd.; ts22190075a31tm@cumt.edu.cn

3:50pm - 4:10pm

Exploring the effect of road network structure on inter-regional accessibility in a diverse road network

Renate Nicole Thiede[1], **Inger Nicolette Fabris-Rotelli**[1], **Pravesh Debba**[2], **Christopher W Cleghorn**[3]

[1]University of Pretoria, South Africa; [2]Council of Scientific and Industrial Research, South Africa; [3]University of the Witwatersrand, South Africa; renate.thiede@up.ac.za

4:10pm - 4:30pm

Spatial big data and analysis strategies supporting Geographic Information System for Transportation (GIS-T) in conceptual design, modelling, and decision-making: A review

Zehua Zhang, **Yongze Song**
Curtin University, Australia; levizhang0111@gmail.com

4:30pm - 4:50pm

UrbanViT - Holistic Urban Sensing with Remote Sensing and Street View Images using Vision Transformers

Zhihang Liu[1], **Hao Li**[2], **Jinlin Wu**[3], **Mei-Po Kwan**[1,4]

[1]Institute of Space and Earth Information Science, The Chinese University of Hong Kong, Hong Kong, China; [2]Department of Aerospace and Geodesy, Professorship for Big Geospatial Data Management, Technical University of Munich, 80333 Munich, Germany; [3]School of Journalism and Communication, Lanzhou University, 730000 Lanzhou, China; [4]Department of Geography and Resource Management, The Chinese University of Hong Kong, Hong Kong, China; hao_bgd.li@tum.de

4:50pm - 5:00pm

Impacts of the built environment on traffic congestion: a case study of New York City

Weihua Huan[1], **Wei Huang**[2]

[1]College of Surveying and Geo-informatics, Tongji University, Shanghai 200092, China; [2]College of Surveying and Geo-informatics, Tongji University, Shanghai 200092, China;Urban Mobility Institute, Tongji University, Shanghai 200092, China; Toronto Metropolitan University, Toronto, M5B 2K3, Canada; wei_huang@tongji.edu.cn

ICWG IV/III: Global Mapping for SDGs

Time: Tuesday, 22/Oct/2024: 3:30pm - 5:00pm · *Location:* Room: Garden Island
Session Chair: Ruofei Zhong
Session Chair: Yiping Chen

3:30pm - 3:50pm

Evaluating the Potential of Nature-Based Solutions (NBS) and Solar Energy in Urban Built Environments with 3D Point Clouds: Insights from Torino, Italy

Sara Biancifiori[1,2], <u>Yogender Yadav</u>[1,3], Piero Boccardo[1], Sisi Zlatanova[3], Adriano Bisello[2]

[1]Inter-university Department of Regional & Urban Studies and Planning (DIST), Politecnico di Torino, Italy; [2]Institute for Renewable Energy, EURAC Research Centre, Bolzano, Italy; [3]School of Built Environment, University of New South Wales, Sydney, Australia; yogender.yadav@polito.it

3:50pm - 4:10pm

The Performance of the Optical Flow Field based Dense Image Matching for UAV Imagery

<u>Wei Yuan</u>[1], Weihang Ran[2], Bruno Adriano[1], Ryosuke Shibasaki[2], Shunichi Koshimura[1]

[1]Tohoku University, Japan; [2]The University of Tokyo, Japan; wei.yuan@tohoku.ac.jp

4:10pm - 4:30pm

Estimating soil salinity using HISUI hyperspectral data in the Western Australian wheatbelt

<u>Emiko Ariyasu</u>, Satomi Kakuta

Asia Air Survey Co., Ltd., Japan; emk.ariyasu@ajiko.co.jp

4:30pm - 4:40pm

Challenges and difficulties in Crowdsourcing for 3D modelling in urban area

Hongchao Fan[1], <u>Yiping Chen</u>[2]

[1]Department of Civil and Environmental Engineering, Norwegian University of Science and Technology, 7491 Trondheim, Norway; [2]School of Geospatial Engineering and Science, Sun Yat-sen University, 519082, Zhuhai, China; chenyp79@mail.sysu.edu.cn

4:40pm - 4:50pm

Assessing the ability of the SDGSAT-1 glimmer imagery in measuring Sustainable Development Goal (SDG) indicators

<u>Bailang Yu</u>[1], Shaoyang Liu[1], Yue Tu[1], Congxiao Wang[1], Zuoqi Chen[2], Xia Li[1]

[1]Key Laboratory of Geographic Information Science, Ministry of Education, East China Normal University, Shanghai, 200241, China; [2]The Academy of Digital China, Fuzhou University, Fuzhou 350108, China; blyu@geo.ecnu.edu.cn

4:50pm - 5:00pm

Impact of infill development types on Land Surface Temperature in Perth, Western Australia

Jacqueline Stott, Helmholz Petra

Curtin University, Australia; j.stott@postgrad.curtin.edu.au

Morning Tea - Poster Session 1: WG 1

Time: Wednesday, 23/Oct/2024: 10:00am - 10:30am · *Location:* Conference Venue

GeoSDG：A spatial simulation tool for exploring the future sustainable development paths

XIA LI

East China Normal University, China, People's Republic of; lixia@geo.ecnu.edu.cn

An AI-based NWP tropospheric parameter-augmented approach for improving GNSS precise point positioning

YUANFAN DENG, WU CHEN, XIAOLONG MI, JUNSHENG DING

The Hong Kong Polytechnic University, Hong Kong S.A.R. (China); yuanfan.deng@connect.polyu.hk

Assessing Flash Droughts in South Korea Using the WRF-Hydro Model: A Comprehensive Analysis of Temporal and Spatial Patterns

Subin Kang, Hyun-Han Kwon

Sejong University, Korea, Republic of (South Korea); k4ng16@sju.ac.kr

Contour data representation learning and terrain analysis using BERT model

Bo Kong, Huafei Yu, Hao Wu, Zhenyu Zhang, Quan Qin, Tinghua Ai, Min Yang

School of Resource and Environmental Sciences, Wuhan University, 430079, Wuhan, China; bokong@whu.edu.cn

An intelligent cartography framework driven by ChatGPT

Hao Wu, Bo Kong, Huafei Yu, Junbo Yu, Tinghua Ai

Wuhan University, China, People's Republic of; wuhaosres@whu.edu.cn

Modelling the Diurnal Land Surface Temperature Cycle in Australia Using Geostationary Satellite Data

Nur Fajar Trihantoro

RMIT University, Australia; s3763564@student.rmit.edu.au

Building and roof type classification on 3D city models

Sitong Li

Delft University of Technology, Netherlands, The; S.Li-57@student.tudelft.nl

BG-LoA: A Benchmarking Framework for BIM/GIS Data Integration based on Meta-Modelling Theory

Junxiang Zhu[1,2], Ran Wei[1], Mengtian Yin[1], Ioannis Brilakis[1]

[1]Department of Engineering, University of Cambridge, United Kingdom; [2]School of Design and the Built Environment, Curtin University, Australia; jz652@cam.ac.uk

CONSTRUCTION AND APPLICATION OF PLACE NAME AND ADDRESS MANAGEMENT SYSTEM BASED ON ELASTICSEARCH

Hongping Zhang[1,2]

[1]School of Geomatics and Urban Spatial Information, Beijing University of Civil Engineering and Architecture, Beijing, China; [2]National geomatics center of China, China, People's Republic of; zhanghongping@ngcc.cn

Analysis of influencing factors of green view index based on street view segmentation

Xin yuan Xu[1], Lei Niu[1,2,3]

[1]School of Surveying and Geo-Informatics, Lanzhou Jiaotong University, Lanzhou, Gansu 730070, China; [2]National-Local Joint Engineering Research Center for Geo-Information Monitoring Technology Application, Lanzhou, Gansu 730070, China; [3]Gansu Provincial Engineering Laboratory for Geo-Information Monitoring, Lanzhou, Gansu 730070, China; l.niu@lzjtu.edu.cn

Rapid development of a spatial Digital Twins using open-source solutions

Nicholas Lee[1], Chayn Sun[1], Serene Ho[2], Monica Wachowicz[1], Debaditya Acharya[1]

[1]Department of Geospatial Science, Royal Melbourne Institute of Technology (RMIT), Australia; [2]Faculty of Engineering and Information Technology (FEIT), University of Melbourne, Australia; nicholas.lee@rmit.edu.au

A DATABASE-BASED AUTOMATIC CARTOGRAPHY METHOD

Tingting Zhao[1,2], Wanzeng Liu[1,2], Xinli Di[1]

[1]National Geomatics Center of China, China; [2]Key Laboratory of Spatio-temporal Information and Intelligent Services (LSIIS), MNR,China; zhaotingting@ngcc.cn

WG 2 - Session 2: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis

Time: Wednesday, 23/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Sirius
Session Chair: Inger Fabris-Rotelli
Session Chair: Rene Stander

10:30am - 10:50am

Generating Long-term GRACE-like Total Water Storage Change Products using Conditional Generative Adversarial Networks

Jielong Wang[1,2], Yunzhong Shen[2], Joseph Awange[1]

[1]Curtin University, Australia; [2]Tongji University, Shanghai, China; jielong.wang@outlook.com

10:50am - 11:10am

Remote Sensing Image Segmentation Based on Probabilistic Fuzzy Local Information Clustering

Xiaoli Li, Longlong Zhao, Jinsong Chen

Shenzhen Institute of Advanced Technology, Chinese Academy of Science, China, People's Republic of; xl.li2@siat.ac.cn

11:10am - 11:20am

Synthesizing Digital Elevation Model for Flood Modeling with Generative AI

Abraham Noah Wu[1,2,3], Rudi Stouffs[1,2,3]

[1]National University of Singapore, Singapore; [2]National Research Foundation; [3]Singapore ETH Centre; e0003217@u.nus.edu

11:20am - 11:40am

Forest Change Mapping using Multi-Source Satellite SAR, Optical, and LiDAR Remote Sensing Data

Benyamin Hosseiny[1], Mahdieh Zaboli[1], Saeid Homayouni[2]

[1]Department of Photogrammetry and Remote Sensing, School of Surveying and Geospatial Engineering, College of Engineering, University of Tehran, Tehran, Iran; [2]Institut National de la Recherche Scientifique, Centre Eau Terre Environnment, Quebec, Canada; ben.hosseiny@ut.ac.ir

11:40am - 12:00pm

THE FRAMEWORK OF GEOSOT-3D GRID MODELING FOR SPATIAL ARTIFICIAL INTELLIGENCE

Bing Han[1], Tengteng Qu[2]

[1]Academy for Advanced Interdisciplinary Studies, Peking University, Beijing 100871, China; [2]College of Engineering, Peking University, Beijing 100871, China; hanbing@stu.pku.edu.cn

WG 1 - Session 1: Spatial Data Representation and Interoperability

Time: Wednesday, 23/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Pleiades
Session Chair: Filip Biljecki

10:30am - 10:50am

Research on Semantic Driven Urban Pipeline Dataspace Construction Method

Binghan Li[1], Liang Huo[1], YaoDong Yang[2], Peng Bao[3], Maolin Zhang[1], Yucai Li[1]

[1]Beijing University of Civil Engineering and Architecture, Beijing 102627, China; [2]State Geospatial Information Center, Beijing 100070, China; [3]CIGIS (China) Limited, Beijing 100010, China; lbh292419@163.com

10:50am - 11:10am

Visualization additional Semantic Information in a 3D Voxel-based Urban Digital Twin - using the Example of the Occupancy Status

Olga Shkedova, Monika Sester

Leibniz University Hannover, Germany; olga.shkedova@ikg.uni-hannover.de

11:10am - 11:30am

Profiling standards towards enhanced standard data power

Francesca Noardo, Rob Atkinson, Alejandro Villar, Ingo Simonis, Piotr Zaborowski

Open Geospatial Consortium, Belgium; ratkinson@ogc.org

11:30am - 11:50am

Building a 4D Cell Complex Topology Through the Extrusion Process

Pawel Boguslawski, Amin Gholami

Wroclaw University of Environmental and Life Sciences, Institute of Geodesy and Geoinformatics, Poland; pawel.boguslawski@upwr.edu.pl

11:50am - 12:00pm

Integrated approach to the documentation of the Minor Historical Urban Centre: a 3D Geodatabase for Salemi (Italy)

Laura La Rosa[1], Elisabetta Colucci[1,2], Giulia Sammartano[1,2], Filiberto Chiabrando[1,2]

[1]Department of Architecture and Design (DAD), Polytechnic University of Turin, Viale Pier Andrea Mattioli, 39, Torino (TO), Italy; [2]Laboratory of Geomatics for Cultural Heritage (LabG4CH), DAD-Polito; elisabetta.colucci@polito.it

ICWG IV/III/II - Session 1: Openness in Geospatial Science and Remote Sensing

Time: Wednesday, 23/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Rottnest Island
Session Chair: Anca Anghelea
Session Chair: Martin Reinhardt

10:30am - 10:50am

From Geospatial Data Cube to AI Cube: the Open Geospatial Engine (OGE) Approach

PENG YUE, KAIXUAN WANG, HANWEN XU, JIANYA GONG, LONGGANG XIANG

Wuhan University, China, People's Republic of; pyue@whu.edu.cn

10:50am - 11:10am

Analysis of Hyperspectral LiDAR Transmission Characteristics in Various Underwater Environments

Boyu Liu, Bo Shi*, Fei Han, Fashuai Li, Yicheng Wang, Yunfan Ma, Yukai Ma, Yusen Liu, Yuwei Chen

Advanced Laser Technology Laboratory of Anhui Province, PR China, China, People's Republic of; lbyyli@foxmail.com

11:10am - 11:20am

Assessing the Availability of Public Domain Datasets for Monitoring Mine Rehabilitation Performance in Australia Using Remote Sensing

Bradley Hiskins[1], Tim T. Werner[2], Victor Maus[3], Jun Li[4], Simit Raval[5], Bikram Banerjee[1]

[1]School of Surveying and Built Environment, University of Southern Queensland, Toowoomba, Australia; [2]School of Geography, Earth and Atmospheric Sciences, University of Melbourne, 221 Bouverie Street, Carlton, VIC, Australia; [3]Institute for Ecological Economics, Vienna University of Economics and Business (WU), Welthandelsplatz 1, 1020, Vienna, Austria; [4]College of Geoscience and Surveying Engineering, China University of Mining and Technology, Beijing, China; [5]School of Minerals and Energy Resources Engineering, University of New South Wales, Sydney, NSW 2052, Australia; bikram.banerjee@unisq.edu.au

11:20am - 11:40am Warning: The presentations finish prior to the end of the session!

Hydrographic Surveying Challenges in the Kimberley

Carver Matthew

Department of Transport, WA, Australia; Matthew.Carver@transport.wa.gov.au

WG 2 - Session 3: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis

Time: Wednesday, 23/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Sirius
Session Chair: Nicholas Hamm
Session Chair: Renate Nicole Thiede

12:00pm - 12:20pm

Automated Pipeline for Multi-LiDAR Extrinsic Calibration: Experimental Evaluation and Performance Analysis

Surbhi Barnwal, Mansi Koshti, Salil Goel
Indian Institute of Technology Kanpur India, India; surbhib20@iitk.ac.in

12:20pm - 12:40pm

Assessing classification performance for sampled remote sensing data

Tshepiso Rangongo, Inger Fabris-Rotelli, Renate Thiede
Department of Statistics, University of Pretoria, South Africa; inger.fabris-rotelli@up.ac.za

12:40pm - 1:00pm

Voxel Size Performance in 3D Indoor Model Creation for 3D Evacuation Simulations

Ruihang Xie, Sisi Zlatanova, Jinwoo{Brian} Lee
School of Built Environment, University of New South Wales, Sydney, Australia; ruihang.xie@unsw.edu.au

WG 1 - Session 2: Spatial Data Representation and Interoperability

Time: Wednesday, 23/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Pleiades
Session Chair: Pawel Boguslawski

12:00pm - 12:20pm

Spatial Pattern of Terrestrial Mammal Species Richness of Pakistan

Bilal Ur Rehman Ansari

Institute of Space Technology, Pakistan; bilal.ansari9626@gmail.com

12:20pm - 12:40pm

Comprehensive Post Flood Damage Assessment of Flood 2022 in Khairpur District, Sindh

Anwar Kamal

Institute of Space Technology Islamabad, Pakistan, Pakistan; anwarkamal72@gmail.com

12:40pm - 1:00pm

Coordinating the best Coastal and Marine Mapping for Western Australia

Ralph Talbot-Smith

Department of Transport, WA, Australia; ralph.talbot-smith@transport.wa.gov.au

Spatial Pattern of Terrestrial Mammal Species Richness of Pakistan

Bilal Ur Rehman Ansari

Institute of Space Technology, Pakistan; bilal.ansari9626@gmail.com

WG 5: Extended Reality and Visual Analytics

Time: Wednesday, 23/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Rottnest Island
Session Chair: Hongping Zhang
Session Chair: Ori Gudes

12:00pm - 12:20pm

ANALYSIS OF CEMENT PROPERTIES USING HYPERSPECTRAL REMOTE SENSING METHODS

Ishtiaq Ahmed, Umesh Kumar Sharma, Pradeep Kumar Garg, Aditya Kumar Thakur
Indian Institute of technology Roorkee, India; ishtiaq_a@ce.iitr.ac.in

12:20pm - 12:40pm

A Virtual Reality Tool for Accuracy Assessment of 3D Models in an Immersive Virtual Environment

S BALA SUBRAMANIYAM[1], DHARSHAN SHYLESH[2], JAGANATHAN RAMASAMY[2], NAVIN KUMAR[2]
[1]L&T Technology Services, Chennai, India; [2]Department of Geography, University of Madras, Chennai, India; dharshansrt@gmail.com

12:40pm - 1:00pm

Development of 3D Urban Digital Twins for Traffic Monitoring in Unreal 5 Game Engine

David Crampen[1], Yogender Yadav[2,3], Shofia Ishar[3], Wenwen Tian[4], Sisi Zlatanova[3]
[1]Geodetic Institute, RWTH Aachen University, Germany; [2]Inter-university Department of Regional & Urban Studies and Planning (DIST), Politecnico di Torino, Italy; [3]School of Built Environment, University of New South Wales, Sydney, Australia; [4]School of Geography and Information Engineering, China University of Geosciences, Wuhan, China; yogender105@gmail.com

WG 1 - Session 3: Spatial Data Representation and Interoperability

Time: Wednesday, 23/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Sirius
Session Chair: Elisabetta Colucci

2:00pm - 2:20pm

Open Geospatial Engine: A Cloud-based Spatiotemporal Computing Platform

Xianyuan Zhang[1], Longgang Xiang[1], Peng Yue[2,3], Jianya Gong[2], Huayi Wu[1]

[1]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430079, China; [2]School of Remote Sensing and Information Engineering, Wuhan University, Wuhan 430079, China; [3]Hubei Province Engineering Center for Intelligent Geoprocessing, Wuhan University, Wuhan 430079, China; zhangxianyuan@whu.edu.cn

2:20pm - 2:40pm

3D Building Modelling from ALS Point Clouds by Delaunay Traiangulation and Graph Theories

Gefei Kong, Hongchao Fan, Gabriele Lobaccaro
Norwegian University of Science and Technology, Norway; hongchao.fan@ntnu.no

2:40pm - 3:00pm

Research on the coupled representation of model and data integration guided by metadata sets

Yucai Li[1], Liang Huo[2], WangZhang Zhu[3], Peng Bao[4], Miao Zhang[5], Binghan Li[6]

[1]Beijing University of Civil Engineering and Architecture, China, People's Republic of; [2]Beijing University of Civil Engineering and Architecture, China, People's Republic of; [3]Geovis Technology Co.,Ltd; [4]CIGIS (CHINA) LIMITED; [5]Beijing University of Civil Engineering and Architecture, China, People's Republic of; [6]Beijing University of Civil Engineering and Architecture, China, People's Republic of; liyucai1211@163.com

3:00pm - 3:10pm

An improved test for the accuracy of spatial point pattern tests – application to road networks

Rene Stander, Inger Fabris-Rotelli, Gregory Breetzke, Jean-Pierre Stander
University of Pretoria, South Africa; rene.stander@up.ac.za

3:10pm - 3:20pm

Predicting building characteristics at urban scale using graph neural networks and street-level context

Binyu Lei[1], Pengyuan Liu[2], Nikola Milojevic-Dupont[3], Filip Biljecki[1,4]

[1]Department of Architecture, National University of Singapore, Singapore; [2]Future Cities Lab Global, Singapore-ETH Centre, Singapore; [3]Technical University of Berlin, Germany; [4]Department of Real Estate, National University of Singapore, Singapore; binyul@u.nus.edu

3:20pm - 3:30pm

Cross-domain Super-Resolution Reconstruction of Urban Hyperspectral Remote Sensing Images Based on Conditional Diffusion Models

Heng Liu, Liang Wu, Mingqiang Guo, Zhenzhen Song
cug, China, People's Republic of; cainandangdao@cug.edu.cn

WG 9 - Session 2: Spatially Enabled Urban and Regional Digital Twins

Time: Wednesday, 23/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Pleiades
Session Chair: Mila Koeva

2:00pm - 2:20pm

Multimodal data, Confidence level and Digital twin

Shirin Malihi[1], Frederic Bosche[2]

[1]University of Cambridge, United Kingdom; [2]School of Engineering, University of Edinburgh; sm2852@cam.ac.uk

2:20pm - 2:40pm

A LiDAR-Based Digital Twinning Workflow for Traffic Monitoring and Simulation

Maulana Ikram Wibisana[1], Mila Koeva[1], Pirouz Nourian[1], Dessislava Petrova-Antonova[2], Kaloyan Karamitov[2]

[1]University of Twente, Netherlands, The; [2]GATE Institute, Sofia University "St. Kliment Ohridski",; m.n.koeva@utwente.nl

2:40pm - 2:50pm

Point Cloud Semantic Segmentation Method Based on Back-propagation and Prototype Learning

Song zhenzhen, Wu liang, Guo mingqiang, Liu Heng
China University of geoscience, China, People's Republic of; songzhenzhen@cug.edu.cn

2:50pm - 3:10pm

3D data integration in the voxel domain

Ben Gorte[1,2], Sisi Zlatanova[1], Morakot Pilouk[3], Abdoulaye Diakite[2], Jack Barton[1]

[1]GRID, School of Built Environment, UNSW, Sydney, Australia; [2]Voxelmates Pty. Ltd.; [3]ESRI; b.gorte@unsw.edu.au

Developing Scorecards Using LaTeX for Decision Makers: Harnessing the Australian Urban Observatory (AUO) Web Map Analytical Services

Ori Gudes, Melanie Davern, Alan Both, Rebecca Roberts
RMIT, Australia; ori.gudes@rmit.edu.au

WG 2 - Session 4: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis

Time: Wednesday, 23/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Rottnest Island
Session Chair: Inger Fabris-Rotelli
Session Chair: Rene Stander

2:00pm - 2:20pm

Machine Learning-Based Soil Moisture Retrieval Using CYGNSS and Interpolated SMAP DATA

Kun Zhang, Kegen Yu, Nianfu Xu, Changyang Wang, Yiruo Lin
China University of Mining and Technology, China, People's Republic of China; kegen.yu@cumt.edu.cn

2:20pm - 2:40pm

SEMANTIC SEGMENTATION UNCERTAINTY ASSESSMENT OF DIFFERENT U-NET ARCHITECTURES FOR EXTRACTING BUILDING FOOTPRINTS

Ehsan Haghighi Gashti[1], Mahmoud Reza Delavar[2], Haiyan Guan[3], Jonathan Li[4]
[1]GIS Dept., School of Surveying and Geospatial Eng., College of Engineering, University of Tehran, Iran, Islamic Republic of; [2]Center 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, Iran, Islamic Republic of; [3]School of Remote Sensing and Geomatics Engineering, Nanjing University of Information Science and Technology, China; [4]Department of Geography and Environmental Management and Department of Systems Design and Engineering, University of Waterloo, Canada; mdelavar@ut.ac.ir

2:40pm - 3:00pm

Maritime Behaviour Anomaly Detection with Seasonal Context

Travis Bronislaw Rybicki, Martin Masek, Chiou Peng Lam
Edith Cowan University, Australia; trybicki@our.ecu.edu.au

3:00pm - 3:20pm

ENVestigator Tools: leveraging remote sensing, the Open Data Cube and machine learning techniques for environmental monitoring

Qingxiang Liu, Fang Yuan, Claire Fisk, James Leversha, Lachlan Hurst, Alex Linossier, Paula Fievez, Annmarie Mabarrack
FrontierSI, Melbourne, Australia; lliu@frontiersi.com.au

3:20pm - 3:30pm

Global Streetscapes -- A comprehensive dataset of millions of street-level images over 700 cities for urban science and analytics

Yujun Hou[1], Matias Quintana[2], Maxim Khomiakov[3], Winston Yap[1], Jiani Ouyang[4], Koichi Ito[1], Zeyu Wang[1], Tianhong Zhao[5], Filip Biljecki[1]
[1]National University of Singapore, Singapore; [2]Singapore-ETH Centre, Singapore; [3]Technical University of Denmark, Denmark; [4]Wuhan University, China; [5]Shenzhen Technology University, China; filip@nus.edu.sg

Afternoon Tea - Poster Session 2: WG 2 and WG 3

Time: Wednesday, 23/Oct/2024: 3:30pm - 4:00pm · *Location:* Conference Venue

River Network Pattern Recognition Supported by Graph Transformer with Global-Local Scale Fusion

Huafei Yu, Aji Gao, Bo Kong, Hao Wu, Zhe Zhou, Tinghua Ai, Yang Min

School of Resource and Environmental Sciences, Wuhan University, Wuhan 430079, China; huafeiyu@whu.edu.cn

Multi-Scale Generative Cartography from High-Resolution Remote Sensing Images via Conditional Diffusion Models Constrained by Geographic Features

Chenxing Sun, Zhanlong Chen, Laner Zhou, Xixi Fan, Jing Bai

China University of Geosciences, People's Republic of China; sunchenxing@cug.edu.cn

Exploring Hydro-Meteorological Changes in the East Asia: A Semi-Hidden Markov Model Approach to ENSO Dynamics

Dongmin Lee, Hyun-Han Kwon

Dept. of Civil and Environmental Engineering, Sejong University, Gwangjin-gu, Seoul, Republic of Korea; dongmin5340@gmail.com

Data informed approach to underground gas storage site condition assessment based on combination of Sentinel 1 and 2 products and spatial statistics

Jan Blachowski, Dariusz Głąbicki, Piotr Grzempowski, Aleksandra Kaczmarek, Karolina Owczarz

Wroclaw University of Science and Technology, Poland; jan.blachowski@pwr.edu.pl

ENSO Forecasts with Spatiotemporal Fusion Transformer Network

Anming Zhao[1], Mengjiao Qin[2], Sensen Wu[1], Renyi Liu[1], Zhenhong Du[1]

[1]Zhejiang university, People's Republic of China; [2]Wuhan University of Technology, People's Republic of China; zhaoanming@zju.edu.cn

Improving Precipitation Estimation in Data-sparse Area Using Domain-adversarial neural network

Honglin ZHU[1], Qiming ZHOU[2,3]

[1]Hong Kong Baptist University, Hong Kong S.A.R. (China); [2]Institute of Research and Continuing Education (IRACE), Hong Kong Baptist University; [3]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University; 20482787@life.hkbu.edu.hk

Cultivated Land Information Extraction and Spatial Pattern Analysis in Beijing Based on Deep Learning

zitong yan[1,2], **hao wu**[1,4], jun zhang[1], dongyang hou[3]

[1]National Geomatics Center of China; [2]China University of Mining and Technology-Beijing; [3]Central South University; [4]Corresponding author; wuhao@ngcc.cn

Analyzing the seismic hazard of Jishishan earthquake based on multi-source data

Wei Li[1,2], Jincheng Du[1,2], Haowen Yan[1,2]

[1]Faculty of Geomatics, Lanzhou Jiaotong University, Lanzhou 730070, China; [2]National and Local Joint Engineering Research Center for Geographic Monitoring Technology Application, Lanzhou 730070, China; geosci.wli@lzjtu.edu.cn

Incorporating Phenological Patterns and Multi-source Remote Sensing Images for Cropland Change Detection

Jiage Chen, Guangyu Du

National Geomatics Center of China, China, People's Republic of; jiagechen@ngcc.cn

Scanning residential powerlines using vehicle-mounted Mobile Laser Scanner

Lachlan Felsch[1,2], **Debaditya Acharya**[1]

[1]RMIT University, Australia; [2]Land Surveys, Australia; debaditya.acharya@rmit.edu.au

Urban functional zones mapping from VHR images and geographical entities

Zhuotong Du[1], Haigang Sui[1], Qiming Zhou[1,2], Junyi Liu[1], Li Hua[3]

[1]The State Key Laboratory of Information Engineering in Surveying Mapping and Remote Sensing, Wuhan University, Wuhan, PR China; [2]Institute of Research and Continuing Education (IRACE), Hong Kong Baptist University, Shenzhen, PR China; [3]College of Resources and Environment, Huazhong Agricultural University, Wuhan, PR China; zhuotongd@whu.edu.cn

Modelling carbon emissions at the individual level in urban area

Tao Jia, Biyu Chen

Wuhan University, China, People's Republic of; tao.jia@whu.edu.cn

Enhancing Water Management through Advanced Runoff Downscaling Methods Using Radar Precipitation Data: A Case Study of the Korean Peninsula

Yoon Jeong Kwon, Hyun-Han Kwon

Sejong University, Korea, Republic of (South Korea); yoonjeongk@sju.ac.kr

Three-Dimensional Geological Modeling and Related Spatial Analysis Methods: A Review

Lifang Wang[1], Yanli Zhu[2], **Syed Yasir Ali SHAH**[2], **Baoyi Zhang**[2]

[1]Hunan Vocational College of Engineering, China, People's Republic of; [2]Central South University, China, People's Republic of; zhangbaoyi@csu.edu.cn

WG 2 - Session 5: Artificial Intelligence and Uncertainty Modeling in Spatial Analysis

Time: Wednesday, 23/Oct/2024: 4:00pm - 5:30pm · *Location:* Room: Sirius
Session Chair: Mahmoud Reza Delavar
Session Chair: Renate Nicole Thiede

4:00pm - 4:20pm

Prediction of Potential Urban Hot Spots in Urban Environments Using Convolutional Neural Networks and Remote Sensing Techniques

Jiongye Li, Rudi Stouffs

Department of Architecture, National University of Singapore, Singapore; lijiongye@u.nus.edu

4:20pm - 4:30pm

Deep Learning for Vegetation Segmentation from MLS point cloud in Urban Setup

Aditya Aditya[1,2], Bharat Lohani[2], Jagannath Aryal[1], Stephan Winter[1]

[1]The University of Melbourne, Australia; [2]Indian Institute of Technology Kanpur; aditya1@student.unimelb.edu.au

4:30pm - 4:40pm

Transferability of GANs-UNet model for informal road detection in underdeveloped areas

Luandrie Potgieter[1], Inger Fabris-Rotelli[1], Renate Thiede[1], Pravesh Debba[2,3], Victoria Rautenbach[1], Jaco Kemp[4], Kyle Loggenberg[4], Zahn Munch[4]

[1]University of Pretoria, South Africa; [2]Council for Scientific and Industrial Research; [3]University of Witwatersrand Johannesburg; [4]Stellenbosch University, South Africa; luan3potgieter@gmail.com

4:40pm - 4:50pm

Low-Light Enhancement on Nighttime Drone Imagery for Surveying Vacant Houses

Boyun Yu[1], Kotaro Iizuka[2], Takashi Oguchi[1,2]

[1]Graduate School of Frontier Sciences, The University of Tokyo, Japan; [2]Center for Spatial Information Science, The University of Tokyo, Japan; 4495488317@edu.k.u-tokyo.ac.jp

4:50pm - 5:10pm

Importance of Citizen Science in Effective Control of VBDs in India

Himmat Singh[1], Kuldeep Singh[1], Gaurav Kumar[1], Sanjeev Kumar[1], Babita Bisht[2]

[1]ICMR-National Institute of Malari Research, Delhi , India; [2]North Delhi Municipal Corporation, Delhi , India; hspawar@rediffmail.com

5:10pm - 5:30pm

UNSUPERVISED BUSHFIRE BURN SEVERITY MAPPING USING AERIAL AND SATELLITE IMAGERY

Ting Bai[1], Dominik Stütz[2], Chang Liu[1], Dimitri Bulatov[2], Jorg Hacker[3,4], Linlin Ge[1]

[1]School of Civil and Environmental Engineering, Faculty of Engineering, The University of New South Wales, Sydney, Australia; [2]Fraunhofer IOSB, Ettlingen, Germany; [3]ARA-Airborne Research Australia, Adelaide, SA, Australia; [4]College of Science and Engineering, Flinders University, Adelaide, SA, Australia; z5218958@ad.unsw.edu.au

ICWG IV/III/II - Session 2: Openness in Geospatial Science and Remote Sensing

Time: Wednesday, 23/Oct/2024: 4:00pm - 5:30pm · *Location:* Room: Rottnest Island
Session Chair: Anca Anghelea
Session Chair: Martin Reinhardt

4:00pm - 4:10pm

Introduction of LiDAR Range Equation to Improve Radiometric Uncertainty of Terrestrial Laser Scanning (TLS)

Mansoor Sabzali, Lloyd Pilgrim, Shin Chan Han

Civil, Surveying and Environemtal Engineering Discipline, The University of Newcastle, Australia; man.sabzali@gmail.com

4:10pm - 4:20pm

Remote Sensing open spatial datasets supporting natural hazard risk mapping and analysis

Elisabetta Colucci, Fabio Giulio Tonolo, Fulvio Rinaudo, Luca Bruno, Lorenzo Raffaele

Department of Architecture and Design, Politecnico di Torino, Torino, Italy.; elisabetta.colucci@polito.it

4:20pm - 4:40pm

Deep Earth System Data Laboratory (DeepESDL)

Anca Anghelea[1], Ewelina Dobrowolska[2], Gunnar Brandt[4], Martin Reinhardt[3], Miguel Mahecha[3], Tejas Morbagal Harish[4], Stephan Meissl[5]

[1]European Space Agency, Italy; [2]Serco Italia, Italy; [3]Remote Sensing Centre for Earth System Research, University of Leipzig, Germany; [4]Brockmann Consult, Germany; [5]EOX IT Services GmbH, Austria; anca.anghelea@esa.int

4:40pm - 5:00pm

EarthCODE – ESA's Earth Science Collaborative Open Development Environment

Anca Anghelea[1], Garin Smith[2], Stephan Meissl[3], Stefan Achtsnit[3]

[1]European Space Agency, Italy; [2]Telespazio UK, UK; [3]EOX IT Services GMbH, Austria; anca.anghelea@esa.int

5:00pm - 5:20pm

Reviewing availability of open data semantic 3D city models for 3D reconstruction

Olaf Wysocki[1], Benedikt Schwab[3], Christof Beil[3], Christoph Holst[1,2], Thomas Heinrich Kolbe[3]

[1]Professorship of Photogrammetry and Remote Sensing, TUM School of Engineering and Design, Technical University of Munich, 80333 Munich, Germany; [2]Chair of Engineering Geodesy, TUM School of Engineering and Design, Technical University of Munich, 80333 Munich, Germany; [3]Chair of Geoinformatics, TUM School of Engineering and Design, Technical University of Munich, 80333 Munich, Germany; olaf.wysocki@tum.de

5:20pm - 5:30pm

Integration Between the Internet of Things and Extended Reality Technologies

Chih-Yuan Huang[1], Chen-Qi Peng[2], Wen-Shuo Liang[1]

[1]Center for Space and Remote Sensing Research, National Central University, Taiwan; [2]Department of Civil Engineering, National Central University, Taiwan; cyhuang@csrsr.ncu.edu.tw

Morning Tea - Poster Session 3: WG 4, WG 5 and WG 6

Time: Thursday, 24/Oct/2024: 10:00am - 10:30am · *Location:* Conference Venue

Automated Selection of Urban Road Network by Fusion of PageRank Algorithm and Semantic Importance Metrics

Tianshu Chu[1,2,3], Haowen Yan[1,2,3], Pengbo Li[1,2,3]

[1]Lanzhoujiaotong University, China, People's Republic of; [2]National-Local Joint Engineering Research Center of Technologies and Purposes for National Geographic State Monitoring, Lanzhou 730070, China; [3]Gansu Provincial Engineering Laboratory for National Geographic State Monitoring, Lanzhou 730070, China;; 954726557@qq.com

A 3D X-tree Optimized for complex indoor building models

Lei Niu[1], Zhiyong Wang[2]

[1]Lanzhou Jiaotong University, China, People's Republic of; [2]South China University of Technology; l.niu@lzjtu.edu.cn

Geospatial Data Enrichment through Address Geocoding: Challenges and Solutions

Emil Hristov[1], **Dessislava Petrova-Antonova**[1], Flavio De Paoli[2], Iva Krasteva[1], Michele Ciavotta[2], Roberto Avogadro[2]

[1]Sofia University, GATE Institute, Bulgaria; [2]Universit`a di Milano–Bicocca, Italy.; dessislava.petrova@gate-ai.eu

Research on the method of managing personal massive photos using geodatabase

Tao Cheng, Xuchao Xing, Xinyan Zheng

National Geomatics Center of China, China, People's Republic of China; xingxuchao@ngcc.cn

Surface deformation analysis by fusion of multi-temporal and multi-source data under disaster emergency conditions

Anpeng Shen[1], Shuangfeng Wei[1], Yuanyuan Wang[2], Zhaodong Yang[3], Shouxin Zhu[4]

[1]Beijing University of Civil Engineering and Architecture; [2]Shaoxing Bureau OF Natural Resources and Planning; [3]Shaoxing Huayuan Land Survey Co., Ltd.; [4]Shaoxing Geotechnical Investigation & Surveying Institute; 2108570022130@stu.bucea.edu.cn

Research On New Spatial Data Infrastructure Supports The Circulation Of Geographic Information Data Elements

Heng Li[1,2,3,4], Wei Huang[1], Yong Zhai[1], Wenhao Zhao[1], Xinyan Zheng[1], Jin Liu[1]

[1]National Geomatics Center of China, People's Republic of China; [2]Institute of Information Engineering, Chinese Academy of Sciences; [3]Key Laboratory of Cyberspace Security Defense; [4]School of Cyber Security, University of Chinese Academy of Sciences; liheng@ngcc.cn

General Directorate of Land Registry and Cadastre, Turkiye

Salih Yalcin, İbrahim Cankurt

Metaverse as a Vision Project for the General Directorate of Land Registry and Cadastre; tk48606@tkgm.gov.tr

Using social media data to understand the behaviour toward geo-information disclosure

Nan Cui[1], Yingwei Yan[1], Chen-Chieh Feng[1], Filip Biljecki[2,3]

[1]Department of Geography, National University of Singapore; [2]Department of Architecture, National University of Singapore; [3]Department of Real Estate, National University of Singapore; yingwei.yan@nus.edu.sg

Browsing Target Extraction and Spatiotemporal Preference Mining from the Complex Virtual Trajectories

Guangsheng Dong[1], Xiangning Mou[1], Hongping Zhang[2], Rui Li[1], Huayi Wu[1], Jie Jiang[3]

[1]State Key Laboratory of Information Engineering in Surveying, Wuhan University, Wuhan, China; [2]National Geomatics Center of China, Beijing, China; [3]School of Geomatics and Urban Spatial Information, Beijing University of Civil Engineering and Architecture, Beijing, China; guangshengdong@whu.edu.cn

Disentangled Graph Neural Network Method for We-Map Recommendations Incorporating Social Information

Ma Wenjun[1,2,3], Yan Haowen[1,2,3], Li Jingzhong[1,2,3]

[1]Faculty of Geomatics, Lanzhou Jiaotong University, Lanzhou 730070, China; [2]National-Local Joint Engineering Research Center of Technologies and Applications for National Geographic State Monitoring, Lanzhou 730070, China; [3]Gansu Engineering Laboratory of Geographic State Information Monitoring, Lanzhou, Gansu, 730070, China;; 646838873@qq.com

Identification and Analysis of Peak Population Migration Patterns in the Beijing-Tianjin-Hebei Region Based on Complex Network Theory

Zheng Wen, Jianqin Zhang, Chaonan Hu

Beijing University of Civil Engineering and Architecture, China, People's Republic of; wenzheng_bucea@163.com

Research on the method of managing personal massive photos using geodatabase

Tao Cheng, Xuchao Xing, Xinyan Zheng

National Geomatics Center of China, China, People's Republic of China; xingxuchao@ngcc.cn

Estimating the relationship between migration and human development using newly released extension series of DMSP-OLS data

Koel Roychowdhury
Presidency University, India; koel.geog@presiuniv.ac.in

Spatial Mobility and Trans-regional Phenomena of Criminal Activities: An Analysis Based on Big Data from Criminal Legal Texts

Zhihang Liu[1], Tao Xiao[2], Jinlin Wu[3], Jiangyan Zeng[4]

[1]Institute of Space and Earth Information Science, The Chinese University of Hong Kong, Hong Kong, China; [2]School of Computer Science and Engineering, Central South University, Changsha, China; [3]School of Journalism and Communication, Lanzhou University, Lanzhou, China; [4]Guangdong Weilun Law Firm, Huizhou, China; 1155223242@link.cuhk.edu.hk

WG 6 - Session 2: Human Behaviour and Spatial Interactions

Time: Thursday, 24/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Sirius
Session Chair: Yan Yingwei

10:30am - 10:50am

Exploring Urban Vitality Characteristics and Interactive Mechanisms at the Community Scale through the Lens of Human Behaviour: A Case Study of Chongqing, China

Jiahui Sheng[1,3], Yuqi He[2], Tao Lu[1,3], Fang Wang[1,3], Yunjing Huang[1], Bingrong Leng[1], Xiang Zhang[4], Yiqun Chen[5]

[1]Chongqing Planning & Design Institute, Chongqing 401147, China; [2]Chongqing Academy of Surveying and Mapping, Chongqing 401123, China; [3]Key Laboratory of Monitoring, Evaluation and Early Warning of Territorial Spatial Planning Implementation, Ministry of Natural Resources (LMEE), Chongqing 401147, China; [4]School of Geography and Information Engineering, National Engineering Research Center of Geographic Information System, China University of Geosciences, Wuhan 430074, China; [5]Faculty of Engineering and Information Technology, The University of Melbourne, Parkville, VIC 3010, Australia; 1554840283@qq.com

10:50am - 11:10am

POI VizNet: New QGIS tool to construct visibility networks in cities

Asya Natapov[1], Sagi Dalyot[2], Achituv Cohen[3]

[1]School of Architecture, Building and Civil Engineering , Loughborough University, England; [2]Civil and Environmental Engineering Faculty, Technion – Israel Institute of Technology, Israel; [3]Department of Civil Engineering, Ariel University, Israel; achituv@ariel.ac.il

11:10am - 11:30am

Analysis of behaviour pattern of bicycle-sharing users based on complex network: a case study of Beijing downtown area

Ruoyan Song, Jie Jiang, Xian Guo

School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, Beijing, China; 2412599871@qq.com

11:30am - 11:40am

Identifying geographical flow clusters by detecting spatial partitioning flow for origin-destination data with scale heterogeneity

Huan Chen[1], Zhipeng Gui[2,3,4], Huayi Wu[1,3,4]

[1]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China; [2]School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China; [3]Collaborative Innovation Center of Geospatial Technology, Wuhan University, Wuhan, China; [4]Hubei Luojia Laboratory, Wuhan, China; chen_huan@whu.edu.cn

11:40am - 12:00pm

LEVERAGING CLOUD COMPUTE AND OPEN SOURCE SOFTWARE TO GENERATE 3D MODELS FROM DRONE PHOTOGRAPHY

Gregory Paul Biegel

Amazon, Australia; gbiegel@amazon.com

Mix WG - Session 1: IoT and VR

Time: Thursday, 24/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Pleiades
Session Chair: Stephan Winter

10:30am - 10:50am

The Fuse Platform: Integrating data from IoT Sensors into an Industrial Spatial Digital Twin

Gregory Paul Biegel[1], Nicholas Bower[2]

[1]Amazon Web Services; [2]Woodside Energy; gbiegel@amazon.com

10:50am - 11:10am

sensorHUB - a Novel, Open-Source Software Stack for Enhanced Accessibility and Secure Interoperability in IoT Project Management

David Gackstetter[1], Parid Varoshi[1], Senthold Asseng[1,2]

[1]Hans Eisenmann-Forum for Agricultural Sciences, Technical University of Munich, Germany; [2]Department of Life Science Engineering, TUM School of Life Sciences, Technical University of Munich, Germany; david.gackstetter@tum.de

11:10am - 11:30am

Augmented reality for air quality monitoring: a case study in the Marche Region (Italy)

Marsia Sanità, Jonathan Fratini, Roberto Pierdicca, Eva Savina Malinverni
Università Politecnica delle Marche, Italy; m.sanita@pm.univpm.it

11:30am - 11:50am

Real-Time Visibility Assessment in an Interactive Immersive Virtual Reality Application for Urban Public Space Design

Gamze Dane[1], Carlos Campoverde[1], Pirouz Nourian[2], Mila Koeva[2]

[1]Eindhoven University of Technology, The Netherlands; [2]University of Twente, The Netherlands; g.z.dane@tue.nl

11:50am - 12:00pm

Quantified Evaluation of Historic District Landscape Characteristics

Xueyan Yang[1,2], Jie Shen[1,3]

[1]College of Civil Engineering and Architecture, Zhejiang University, Hangzhou, China; [2]Zhejiang University Architectural Design and Research Institute Co., Ltd., Hangzhou, China; [3]Center for Balance Architecture, Zhejiang University, Hangzhou, China; yangxueyan@zju.edu.cn

UPINLBS Session 1.1: Universal Positioning, Indoor Navigation and Location-Based Services

Time: Thursday, 24/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Orion
Session Chair: Günther Retscher
Session Chair: Cheng Yang

10:30am - 10:50am

An Enhanced Seamless Localization Framework Using Spatial-temporal Uncertainty Predictor Under Obscured Indoor and Outdoor Scenes

Yue Yu[1], Shiyu Bai[1], Jingxian Wang[1], Kexin Tang[1], Sheng Bao[1], Liang Chen[2], Ruizhi Chen[2]

[1]The Hong Kong Polytechnic University, Hong Kong S.A.R. (China); [2]Wuhan University, LIESMARS; Doc_Yue_Yu@163.com

10:50am - 11:10am

LUOJIA Explorer: An Auto-UAV for Unexposed Space Exploration

Shangzhe Sun[1,2,3], Chi Chen[1,2,3], Bisheng Yang[1,2,3], Liuchun Li[4], Yuhang Xu[1,2,3], Ang Jin[1,2,3]

[1]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China; [2]Engineering Research Center for Spatio-temporal Data Smart Acquisition and Application, Ministry of Education of China, China; [3]Institute of Geo-spatial intelligence, Wuhan University, Wuhan, China; [4]Institute of Artificial Intelligence, School of Computer Science, Wuhan University, Wuhan, China; SSZ@whu.edu.cn

11:10am - 11:30am

How many events are needed for one reconstructed image using an event camera?

Tingting Lei[1,2], Xueli Guo[1], You Li[1]

[1]Wuhan University, China, People's Republic of; [2]Technical University of Munich, Germany; leitingting@whu.edu.cn

11:30am - 11:40am

A self-correction model for ubiquitous indoor localization

Zhenqi Zheng, You Li, Xuan Wang, Zhichao Wen, Xiansheng Yang, Sikang Liu, Xiao Sun
Wuhan University, China, People's Republic of China; zhengzhenqi@whu.edu.cn

11:40am - 12:00pm

Invariant Extended Kalman Filtering for Pedestrian Deep-Inertial Odometry

Shiyu Bai[1], Weisong Wen[1], Yue Yu[2], Li-Ta Hsu[1]

[1]Department of Aeronautical and Aviation Engineering, The Hong Kong Polytechnic University, Hong Kong, China; [2]Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, Hong Kong, China; shiyu.bai@polyu.edu.hk

WG 9 - Session 3: Spatially Enabled Urban and Regional Digital Twins

Time: Thursday, 24/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Rottnest Island
Session Chair: Ori Gudes
Session Chair: Desislava Petrova-Antonova

10:30am - 10:50am

The Accuracy of RTK enabled Mobile Phones in RTK denied Areas

Christoph Strecha, Martin Řehák, Davide Cucci
Pix4D SA, Switzerland; christoph.strecha@pix4d.com

10:50am - 11:10am

Developing A Responsive Digital Twin for Real-Time City-Scale Flood Modelling and Interaction

Ryan Turner, Qian {Chayn} Sun
RMIT University, Australia; ryan.turner@rmit.edu.au

11:10am - 11:30am

Possibility of Substitution of LOD1 Data for LOD2 Data on Photovoltaic Potential Estimation at City Districts Level Using a 3D City Model

Ryuji Matsuoka, Kazumasa Koide, Ryogo Abe, Saki Kato, Takashi Takemoto
Kokusai Kogyo Co., Ltd., Japan; ryuji_matsuoka@kk-grp.jp

11:30am - 11:50am Warning: The presentations finish prior to the end of the session!

Low-Cost Thermal Point Clouds of Indoor Environments

Aiara Brea, Francisco García-Corbeira, Elisavet Tsiranidou, Lucía Díaz-Vilariño, Joaquín Martínez
CINTECX, Universidade de Vigo, GeoTECH Group. 36310 Vigo, Spain; lucia@uvigo.es

WG 4 - Session 1: Data Management for Spatial Scenarios

Time: Thursday, 24/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Sirius
Session Chair: Emmanuel Stefanakis

12:00pm - 12:20pm

Contradiction Hidden in Values of Urban Raster Data

Toshihiro Osaragi, Yoshitsugu Aoki

Tokyo Institute of Technology, Japan; osaragi.t.aa@m.titech.ac.jp

12:20pm - 12:40pm

Blue Carbon Mangroves of Kachchh, Gujarat: Tracking Spatio-Temporal Changes

Shrutika Bhoopendra Raj Parihar[1], Nikhil Lele[2], Minal Pathak[1]

[1]Global Centre for Environment and Energy, Ahmedabad University, Gujarat, India; [2]Indian Space Research Organisation, Department of Space, Government of India, Ahmedabad, Gujarat, India; shrutika.p1@ahduni.edu.in

12:40pm - 1:00pm

TEMPORAL AND SPATIAL DYNAMICS OF SUBSIDENCE IN EASTERN JHARIA, INDIA

Aditya Kumar Thakur[1], Luvkesh Attri[2], Rahul Dev Garg[1], Kamal Jain[1], Dheeraj Kumar[3], Arnab Chowdhury[1]

[1]Department of Civil Engineering, Indian Institute of Technology Roorkee, India; [2]Department of Civil Engineering, Indian Institute of Technology Bombay, Mumbai, India; [3]Department of Mining Engineering, Indian Institute of Technology (Indian School of Mines) Dhanbad, India; aditya_kt@ce.iitr.ac.in

WG 10 - Session 1: Use of human digital twins in allied health and medical education

Time: Thursday, 24/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Pleiades
Session Chair: Roslyn Ward

12:00pm - 12:10pm

Introducing objective measures of speech motor control to the clinical setting: The SMAAT approach

Richard Palmer[1,2], Roslyn Ward[1,2], Petra Helmholz[2]

[1]School of Allied Health, Curtin University, Australia; [2]School of Earth and Planetary Sciences, Curtin University, Australia; R.L.Palmer@curtin.edu.au

12:10pm - 12:20pm

The SMAAT Home Practice App: Providing objective measures of speech movements with a mobile application interface

Guntas Singh, Petra Helmholz, Roslyn Ward
Curtin University, Australia; guntas.singh@student.curtin.edu.au

12:20pm - 12:30pm

Facial Landmark Network Analysis for Speech Sound Disorder Applications

Liam Boyle, Helmholz Petra, Roslyn Ward, Derek Lichti
Curtin University, Australia; liam.boyle@curtin.edu.au

12:30pm - 12:40pm

Creating digital twins of anatomical body donor specimens using photogrammetry

Morgan Titmus[1], Gary Whittaker[1], Milo Radunski[1], Paul Ellery[1], Beatriz Ito Ramos De Oliveira[1,2], Hannah Radley[1], Alina Miranda[1], Petra Helmholz[3], Zhonghua Sun[1]

[1]Curtin Medical School, Curtin University, Australia; [2]Swinburne University of Technology; [3]School of Earth and Planetary Sciences, Curtin University; Morgan.Titmus@curtin.edu.au

12:40pm - 12:50pm Warning: The presentations finish prior to the end of the session!

From Papyrus to 3D digital imaging – a Medical Illustration perspective

Eamonn McNulty
Perth Children's Hospital, Australia; Eamonn.McNulty@health.wa.gov.au

UPINLBS Session 1.2: Universal Positioning, Indoor Navigation and Location-Based Services

Time: Thursday, 24/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Orion
Session Chair: Amir Allahvirdizadeh

12:00pm - 12:20pm

Strong robust LIO system based on event camera assistance

xueli guo[1], Xuanxuan Zhang[1], Zhichao Wen[1], Tianxiang Zhang[1], Tingting Lei[1,2], You Li[1]

[1]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China; [2]TUM School of Engineering and Design, Technical University of Munich, Munich, Germany; guoxueli@whu.edu.cn

12:20pm - 12:40pm

Fuzzy Comprehensive Evaluation based NLOS Identification for UWB Indoor Positioning

Jinkun Li[1], Chundi Xiu[1], Feng Wang[1], Maria S. Selezneva[2], Dongkai Yang[1,3]

[1]Department of Electronic Information Engineering,Beihang University, Beijing, People's Republic of China; [2]Department of Automatic Control Systems, Bauman Moscow State Technical University, Moscow, Russia; [3]International Innovation Institute, Beihang University, Hangzhou,China, People's Republic of China; jkl_Reuben@163.com

12:40pm - 1:00pm

Efficient Multi-floor Indoor Mapping with a versatile rotating LiDAR system

Yangzi Cong[1,2], Tianhe Xu[2], Chi Chen[3], Wenfeng Nie[2], Bisheng Yang[3]

[1]Key Laboratory of Smart Earth, Beijing, China; [2]School of Space Science and Physics, Shandong University, Weihai, Shandong, China; [3]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China; yzcong@sdu.edu.cn

Mix WG - Session 2: Metaverse and beyond

Time: Thursday, 24/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Rottnest Island
Session Chair: Yongze Song

12:00pm - 12:20pm

Integration of Digital Repositories and Spatial Design within the Metaverse: the Evaluation of Features and Narratives to set Learning Environments on Cultural Heritage

Raffaella De Marco
University of Pavia, Italy; raffaella.demarco@unipv.it

12:20pm - 12:40pm

Conceptual Model of Graph-based Individual Tree and Its Utilization in Digital Twin and Metaverse of Urban Forest

Agus Ambarwari[1], Deni Suwardhi[1], Medria Shekar Rani[1], Emir Husni[1], Deny Willy Junaidy[1], Fauzan Alfi Agirachman[1], Arnadi Murtiyoso[2], Verena Christiane Griess[2]

[1]Institut Teknologi Bandung, Indonesia; [2]Institute of Terrestrial Ecosystems, Switzerland; 33222026@mahasiswa.itb.ac.id

12:40pm - 1:00pm

Spectral Unmixing of Pigments on Surface of Painted Artefacts Considering Spectral Variability

Yu Wang[1,2], ShuQiang Lyu[1,2], Bo Ning[3], Ding Yan[3], MiaoLe Hou[1,2], PengYu Sun[1,2], LiHong Li[3]

[1]School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, No.15 Yongyuan Road, Daxing District, Beijing, China; [2]Beijing Key Laboratory for Architectural Heritage Fine Reconstruction & Health Monitoring, No.15 Yongyuan Road, Daxing District, Beijing, China; [3]Yungang Academy, Datong, Shanxi Province, China; wydyx0705@163.com

WG 4 - Session 2: Data Management for Spatial Scenarios

Time: Thursday, 24/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Sirius
Session Chair: Mahmoud Reza Delavar

2:00pm - 2:20pm

Dynamic-Earth: Temporal-symmetric Earth Dynamic Monitoring from High-Resolution Remote Sensing Images

Haonan Guo[1], Bo Du[3], Chen Wu[1], Xin Su[2], Liangpei Zhang[1]

[1]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China; [2]School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, China; [3]School of Computer Science, Wuhan University, Wuhan, China; haonan.guo@whu.edu.cn

2:20pm - 2:40pm

Dynamic coastal mapping using Sentinel-1 and Sentinel-2 data through Digital Earth Africa

Qingxiang Liu[1], Fang Yuan[1], Caitlin Adams[1], Lisa-Maria Rebelo[2], Michael Wellington[3]

[1]FrontierSI, Melbourne, Australia; [2]Digital Earth Africa, Pretoria, South Africa; [3]Geoscience Australia, Canberra, Australia; lliu@frontiersi.com.au

2:40pm - 3:00pm

Smart Water Management and the Power of Collaboration

Tatiana Aleksandrovna Bogdanova

Het Waterschapshuis, Netherlands, The; t.bogdanova@hetwaterschapshuis.nl

3:00pm - 3:20pm

OPERATIONAL GOOGLE EARTH ENGINE WORKFLOW TO MONITOR IRRIGATED AREAS IN SEMI -ARID CLIMATE

Sikdar Rasel, Kilian Vos, Azeem Khan, Yi Lu, Mustak Shaikh, Vaibhav Gupta, Michelle Newstead

Department of Climate Change, Water, the Environment and Energy, Australia; azeem.khan@dpie.nsw.gov.au

3:20pm - 3:30pm

Assessing the Heat Mitigation Capacity of the Perth Metropolitan using the InVEST Urban Cooling Model

Amanda Tevlone, Petra Helmholz, Ivana Ivanova

Curtin University, Australia; petra.helmholz@curtin.edu.au

WG 10 - Session 2: Applied Spatial Science for Public Health

Time: Thursday, 24/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Pleiades
Session Chair: Priyanka Singh
Session Chair: Bijoy Krishna Handique

2:00pm - 2:20pm

An integrated approach for development of a decision support system for early surveillance of Japanese encephalitis: a remote sensing- based study in conjunction with epidemiological scenario in Assam, India

Bijoy K. Handique[1], **Siraj A. Khan**[2], **K.K Sarma**[1], **Kasturi Chakraborty**[1], **Jonali Goswami**[1], **Anisha Shah**[2], **S.P. Aggarwal**[1]

[1]North Eastern Space Applications Centre (NESAC), India; [2]ICMR, Regional Medical Research Centre, NE Region, India; bkhandique@gmail.com

2:20pm - 2:40pm

Systematic Review on Citizen Science and Artificial Intelligence for Vector-Borne Diseases

Sameer Saran[1], **Priyanka Singh**[2]

[1]RRSC, NRSC, ISRO, India; [2]UPES, Dehradun, India; priyanka.iirs@gmail.com

2:40pm - 2:50pm

Machine Learning-Based Dengue Risk Assessment using Climate and Environmental Satellite Data

Kashaf Shakoor[1], **Muhammad Shahzad Sarfraz**[1], **Francis Palma**[2]

[1]National University of Computer and Emerging Sciences, Pakistan; [2]SE+AI Lab, Faculty of Computer Science, University of New Brunswick, Canada; shahzad.sarfraz@nu.edu.pk

2:50pm - 3:10pm

The Evolution and Future Prospects of Spatial Technology in Addressing Vector-Borne Diseases

Sanjeev Kumar Gupta[1], **Gaurav Kumar**[1], **Kuldeep Singh**[1], **Kumar Vikram**[2], **Himmat Singh**[1]

[1]ICMR-National Institute of Malaria Research, India; [2]Indian Council of Medical Research, India; nimr.sanjeev@gmail.com

3:10pm - 3:30pm

Explaining distribution of Aedes albopictus by environmental factors using machine learning

Priyanka Singh[1], **Sameer Saran**[2]

[1]UPES, Dehradun, India; [2]RRSC-North, ISRO, New Delhi, India; priyanka.iirs@gmail.com

Mix WG - Session 3: 3D Digital Twins

Time: Thursday, 24/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Orion
Session Chair: Dimitri Bulatov
Session Chair: Benedikt Kottler

2:00pm - 2:20pm

Unsupervised Clustering-based 3D Static Scene Construction Using LiDAR Channel and Azimuth Angle

Rohit Rajput, Salil Goel, Aditya Medury

Indian Institute of Technology Kanpur, India; rrajput@iitk.ac.in

2:20pm - 2:40pm

QUANTIFYING MARINE GROWTH ON PIPELINES WITH ARCHIVAL REMOTELY OPERATED VEHICLE FOOTAGE – A CASE STUDY

Ben Bayley[1], Terry Griffiths[2], Fabrizio Pistani[2], Petra Helmholz[1], David Belton[1], Iain Parnum[1]

[1]School of Earth and Planetary Sciences, Curtin University, Bentley Western Australia GPO Box U1987, Perth, WA, Australia; [2]Aurora Offshore Engineering, Unit 2, 186 Hampden Road, Nedlands, WA, Australia; i.parnum@curtin.edu.au

2:40pm - 3:00pm

Geospatial analytical challenges using remote sensing and bathymetric data across multidisciplinary uses to deliver web app products

Sharon Hu

Department of Transport, Australia; sharon.hu@transport.wa.gov.au

3:00pm - 3:10pm

An Automatic Updating Method for Complex Polygons Based on Topological Relationship

Xiaoguang Zhou, Zhenming Tang, Dongyang Hou, Jiaxiang Zhou

Central South University, China, People's Republic of; zxgcsu@foxmail.com

3:10pm - 3:20pm

A Study on Digital Twin-Driven Governance Framework for Urban Public Service Facilities

Shuming Zhao, Chao Mao

Chongqing University, China, People's Republic of; zhaoshuming@cqu.edu.cn

3:20pm - 3:30pm

Broadband Satellites: A New LEO-PNT System

Amir Allahvirdizadeh, Ahmed El-Mowafy

Curtin University, Australia; amir.allahvirdizadeh@curtin.edu.au

Mix WG - Session 4: Metaverse and beyond

Time: Thursday, 24/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Rottnest Island
Session Chair: Franz Rottensteiner
Session Chair: Qiaoyun Xie

2:00pm - 2:10pm

Pedestrian Video Trajectory Analysis in a Digital Twin Environment

Wenwen Tian[1], Daole Ding[1], Chao Yang[2], Sisi Zlatanova[3], Jianya Gong[4]

[1]China University of Geosciences(Wuhan); [2]National Engineering Research Center for Geographic Information System, China University of Geosciences(Wuhan); [3]University of South Wales, Sydney; [4]Wuhan University; yangchao@cug.edu.cn

2:10pm - 2:30pm

STUDY ON THE APPLICABILITY OF DETERIORATION DETECTION TECHNIQUES FOR SANDSTONE HERITAGE IN MUITI ENVIRIONMENT USING MLP-ATTENTION MODEL

Chengjin Yan[1,2], Yuan Cheng[1,3], Yue Zhang[1,3], Haomin Yu[4], Jizhong Huang[1,3], Hongbin Yan[5]

[1]Key Laboratory of Silicate Cultural Relics Conservation (Shanghai University), Ministry of Education; [2]School of Computer Engineering and Science, Shanghai University; [3]Institute for the Conservation of Cultural Heritage, School of Cultural Heritage and Information Management, Shanghai University; [4]Department of Computer Science, Aalborg University; [5]Yungang Research Institute; chengyuan@shu.edu.cn

2:30pm - 2:50pm

Multi- and hyperspectral satellite imagery-derived mineral and vegetation products at the regional to continental scale

Carsten Laukamp
CSIRO, Australia; Carsten.Laukamp@csiro.au

2:50pm - 3:10pm Warning: The presentations finish prior to the end of the session!

United Nations Framework for Unlocking the Power of the Geospatial Information Ecosystem: Real-Time Insights and Commercial Opportunities to Bridge the Geospatial Divide

Lesley Arnold
Geospatial Frameworks WA, Australia; lesley.arnold@geospatialframeworks.com.au

Afternoon Tea - Poster Session 4: WG 7, WG 8 and WG 9

Time: Thursday, 24/Oct/2024: 3:30pm - 4:00pm · *Location:* Conference Venue

Conceptual data modelling for 3D pedestrian mobility spaces based on CityGML 3.0

Bahram Saeidian, Stephan Winter, Martin Tomko, Ehsan Hamzei
The University of Melbourne, Australia; winter@unimelb.edu.au

Multi-UAV Cooperative Path Planning in emergency situations

Yiping Wang, Zhiyong Wang, Zhaoyu Lin
School of Civil Engineering and Transportation, South China University of Technology, Guangzhou 510006,China; zwang1984@scut.edu.cn

UAV 2D path planning considering ground suitability for flying safety in digital twin

Jieun Kim, Hongki Sung, Kyoosoo Cheong, Tae-Hoon Kim, Junhee Youn
KICT, Korea, Republic of (South Korea); jekim@kict.re.kr

Texture Reconstruction Method Guided by Multi-View Semantic Segmentation Information

Zhendong Liu[1], Shilong Zhang[1], Jianlong Zhang[2], Dongyang Wang[1]
[1]Chinese Academy of Surveying and mapping, China, People's Republic of; [2]Capital Normal University, China; MVEVision@126.com

Fine Fitting Algorithm of Street Tree DBH based on Mobile LiDAR Point Clouds

Yongqiang Li, HuiYun Liu, HongMei Qu, ZhiYao Wang
School of Surveying and Land Information Engineering, Henan Polytechnic University, Jiaozuo 454000, China; liyongqiang@hpu.edu.cn

Control analysis of buildings under construction from indoor Mobile Mapping Systems

Patricia González-Cabaleiro, Rosa M. Túñez-Alcalde, Muataz S.A. Albadri, Antonio Fernández, Lucía Díaz-Vilariño
CINTECX, Universidade de Vigo, GeoTECH Group. 36310 Vigo, Spain; lucia@uvigo.es

CityCanvas: A Conditional Diffusion Model for Precise Street Image Editing

Jlin Wu[1], Zhihang Liu[2]
[1]School of Journalism and Communication, Lanzhou University, 730000 Lanzhou, China; [2]Institute of Space and Earth Information Science, The Chinese University of Hong Kong, Hong Kong, China; 220220941091@lzu.edu.cn

Open-Source Solutions for Real-Time 3D Geospatial Web Integration

Marcello La Guardia[1], Mila Koeva[2], Lucía Díaz Vilariño[3], Pirouz Nourian[1]
[1]University of Florence; [2]University of Twente, Netherlands, The; [3]Universida de Vigo; m.n.koeva@utwente.nl

High-precision monitoring during the installation of large steel structures by UAV nap-of-the-object photogrammetry

Chuanyao Liu[1], Shuangfeng Wei[1], Min Zhang[2], Qiang Yan[3], Fan Yu[1]
[1]Beijing University of Civil Engineering and Architecture; [2]Yuecheng Branch of Shaoxing Bureau OF Natural Resources and Planning; [3]Nanjing AlphaStar Information Technology Co.,Ltd.; 2108160222009@stu.bucea.edu.cn

A 3D Decision Support System for Optimizing Nature Based Solutions for Climate Risk Scenario (Case Study: Semarang Coastal Area)

Ardiyanto Maksimilianus Gai, Dekka Dhirgantara Putra
Institut Teknologi Nasional Malang, Indonesia; ardiyanto_maksimilianus@lecturer.itn.ac.id

A Novel Nonlinear Stochastic-Resonance-Enhanced Acceleration Data Processing Approach

Xuyu Gao, Di He, Xin Chen, Yan Xiang, Danping Zou, Ling Pei
Shanghai Jiao Tong University, China, People's Republic of; gao_xuyu@sjtu.edu.cn

WG 4 - Session 3: Data Management for Spatial Scenarios

Time: Thursday, 24/Oct/2024: 4:00pm - 5:30pm · *Location:* Room: Sirius
Session Chair: Markus Jahn
Session Chair: Emmanuel Stefanakis

4:00pm - 4:20pm

Three-dimensional change detection and description in complex construction scenarios

Xuming Ge, Xingjing Liu

Southwest jiaotong university, China, People's Republic of; xuming.ge@swjtu.edu.cn

4:20pm - 4:40pm

Back to the future: Revisiting Barometric Levelling

Gabriel Scarmana

University of Southern Queensland, Australia; gabriel.scarmana@usq.edu.au

4:40pm - 4:50pm

Exploring the effectiveness of phenology-based NDVI in coffee yield prediction: a Structural Equation Modelling analysis

Thuy Nguyen[1,2], Jarrod Kath[1,3], Louis Reymondin[4], Thong Nguyen-Huy[1], Vivekananda Mittahalli Byrareddy[1], Shahbaz Mushtaq[1]

[1]Centre for Applied Climate Sciences, Institute for Life Sciences and the Environment, University of Southern Queensland, Toowoomba, QLD 4350, Australia; [2]International Center for Tropical Agriculture – Hanoi Hub, Agricultural Genetics Institute, Pham Van Dong, Bac Tu Liem, Hanoi, Vietnam; [3]School of Agriculture and Environmental Science, Faculty of Health, Engineering and Sciences, University of Southern Queensland, Toowoomba, QLD 4350, Australia; [4]Bioversity International, Parc scientifique Agropolis II, 1990 Bd de la Lironde, Montpellier, France; Thuy.Nguyen@unisq.edu.au

4:50pm - 5:00pm Warning: The presentations finish prior to the end of the session!

Monitoring and mapping land surface phenology across diverse ecosystems in Australia

Qiaoyun Xie[1,2], Caitlin E. Moore[3,4], Jamie Cleverly[5], Christopher C. Hall[6], Yanling Ding[7], Xuanlong Ma[8], Andy Leigh[6], Alfredo Huete[6]

[1]School of Engineering, The University of Western Australia, Crawley, WA 6009, Australia; [2]Centre for Water and Spatial Science, The University of Western Australia, Crawley, WA 6009, Australia; [3]School of Agriculture and Environment, The University of Western Australia, Crawley, WA 6009, Australia; [4]Institute for Sustainability, Energy and Environment, University of Illinois Urbana-Champaign, Urbana, IL 61801, USA; [5]Terrestrial Ecosystem Research Network, College of Science and Engineering, James Cook University, Cairns, QLD 4811, Australia; [6]Faculty of Science, University of Technology Sydney, Sydney, NSW 2007, Australia; [7]Key Laboratory of Geographical Processes and Ecological Security in Changbai Mountains, Ministry of Education, School of Geographical Sciences, Northeast Normal University, Changchun 130024, China; [8]College of Earth and Environmental Sciences, Lanzhou University, Lanzhou, Gansu 730000, China; qiaoyun.xie@uwa.edu.au

UPINLBS Session 1.3: Universal Positioning, Indoor Navigation and Location-Based Services

Time: Thursday, 24/Oct/2024: 4:00pm - 5:30pm · *Location:* Room: Orion
Session Chair: Ruizhi Chen

4:00pm - 4:20pm

A NOVEL PLATFORM AND WORKFLOW FOR UNDERWATER PHOTOGRAMMETRY SURVEYS

Alaa Mufti[1,2,3], Petra Helmholz[1], David Belton[1], Amir Allahvirdi-Zadeh[1], Iain Parnum[1,2]

[1]School of Earth and Planetary Science, Curtin University, Australia; [2]Centre for Marine Science and Technology, Curtin University, Australia; [3]King Abdulaziz University, Rabigh 25732, Saudi Arabia; i.parnum@curtin.edu.au

4:20pm - 4:40pm

NeRF-based Localization and Meshing with Wearable Laser Scanning System: A Case Study in Underground Environment

Yizhe Zhang[1], Jianping Li[1,2], Xin Zhao[1], Youqi Liao[1], Zhen Dong[1], Bisheng Yang[1]

[1]Wuhan University; [2]School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore; yizhezhang0418@163.com

4:40pm - 5:00pm

Pedestrian Path Choice in Crowded Indoor Environments

Liu Liu[1], Sisi Zlatanova[2], Ruihang Xie[2]

[1]College of Architecture and Urban Planning, Tongji University, P.R. China; [2]Faculty of Built Environment, UNSW Sydney, Australia; l.liu@tongji.edu.cn

5:00pm - 5:20pm Warning: The presentations finish prior to the end of the session!

Assessing Photovoltaic Potential in Urban Environments: A Comparative Study between Aerial Photogrammetry and LiDAR Technologies

Yogender Yadav[1,2], Harshit Harshit[3], Piero Boccardo[1], Sisi Zlatanova[2], Kamal Jain[3]

[1]Inter-university Department of Regional & Urban Studies and Planning (DIST), Politecnico di Torino, Italy; [2]School of Built Environment, University of New South Wales, Sydney, Australia; [3]Department of Civil Engineering, Indian Institute of Technology Roorkee, Roorkee, India; yogender105@gmail.com

WG 10 - Session 3: Applied Spatial Science for Public Health

Time: Thursday, 24/Oct/2024: 4:00pm - 5:30pm · *Location:* Room: Rottnest Island
Session Chair: Michelle de Klerk
Session Chair: Gaurav Kumar

4:00pm - 4:20pm

Hospital accessibility catchment areas as a fuzzy lattice data structure

<u>Michelle de Klerk</u>, Inger Fabris-Rotelli

University of Pretoria, South Africa; <u>u04377915@tuks.co.za</u>

4:20pm - 4:40pm

Artificial intelligence Revolutionizing Mosquito Surveillance for Enhanced Vector-Borne Disease Control

<u>Gaurav Kumar</u>[1], Sanjeev Kumar[1], Kuldeep Singh[1], Sameer Saran[2], Himmat Singh[1]

[1]ICMR-National Institute of Malaria Research, India; [2]Regional Remote Sensing Centre- North, National Remote Sensing Centre, ISRO, New Delhi, India; <u>gauravnimr@gmail.com</u>

4:40pm - 5:00pm Warning: The presentations finish prior to the end of the session!

A machine learning approach for modelling the spatial-temporal propagation pattern of COVID-19

Mohsen Foruzadeh, <u>Najmeh Neysani Samany</u>, Bigard Khodakaramian

Tehran University, Iran, Islamic Republic of; <u>nneysani@ut.ac.ir</u>

Morning Tea - Poster Session 5: WG 10, WG 11 and ICWG IV/II

Time: Friday, 25/Oct/2024: 10:00am - 10:30am · *Location:* Conference Venue

Comparison of greenness's moderating role in the nexus between lung cancer and particulate matter with different particle sizes

Keyu Luo

The univiersity of Hong Kong, Hong Kong S.A.R. (China); bessyluo@connect.hku.hk

Lagged impacts of environmental variables on spatiotemporal variations of dengue in Southeast Asian countries before and during COVID-19

Wei Luo[1,2], **Zhihao Liu**[3], **Yiding Ran**[1], **Mengqi Li**[4], **Yuxuan Zhou**[5], **Weitao Hou**[6], **Shengjie Lai**[7], **Sabrina Li**[8], **Ling Yin**[9]

[1]GeoSpatialX Lab, Department of Geography, National University of Singapore, Singapore, Singapore; [2]Saw Swee Hock School of Public Health, National University of Singapore, Singapore, Singapore; [3]School of Geosciences, Yangtze University, Wuhan, China; [4]Department of Geography, University of Zurich, Zurich, Switzerland; [5]Department of Architecture and Civil Engineering, City University of Hong Kong, Hong Kong Special Administrative Region, China; [6]School of Design and the Built Environment, Curtin University, Perth, Australia; [7]WorldPop, School of Geography and Environmental Science, University of Southampton, Southampton, United Kingdom; [8]School of Geography, University of Nottingham, Nottingham, United Kingdom; [9]Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; weiluo00001@gmail.com

Fostering the Indian Healthcare Infrastructure Landscape using Geospatial Technologies: Insights through NHRR Project

Gaurav Kumar[1], **Giribabu Dandabathula**[1], **Madhu Raikwar**[2], **Apurba Kumar Bera**[1]

[1]Regional Remote Sensing Centre - West, National Remote Sensing Centre, Indian Space Research Organisation, Jodhpur, India; [2]Central Bureau of Health Intelligence, Ministry of Health and Family Welfare, New Delhi, India; gaurav1089@gmail.com

From Pixels to Places: Understanding Social Media Addiction Through a Spatial Lens

Pooja Sarin

UPES Dehradun, India; pooja.sarin@ddn.upes.ac.in

Assessment of building damage under different ground settlement movements using MT-InSAR monitoring technique

Yi Zheng, **Peifeng Ma**

The Chinese University of Hong Kong, Hong Kong S.A.R. (China); yizheng@link.cuhk.edu.hk

Towards a digital twin of built heritage based on heterogeneous photographs: Octree-based point cloud for storing, visualizing and assessing buildings information and its reliability

Antonio Suazo

Evidencia Visual - junior research group, Chile; asuazo1@uc.cl

Digital archives for academic heritage: tools and processing environments for the museum metaverse and scientific dissemination

Maurizio Marco Bocconcino[1], Giorgio Garzino[2], Martino Pavignano[3], Mariapaola Vozzola[4]

[1]Politecnico di Torino, DISEG - Italy; [2]Politecnico di Torino, DISEG - Italy; [3]Politecnico di Torino, DAD - Italy; [4]Politecnico di Torino, DISEG - Italy; maurizio.bocconcino@polito.it

Polar Sea Ice Leads Detection Using Deep Learning with MODIS Imagery

Yueyun Wang[1], Bin He[1], Xiaoping Pang[1,2], Tingting Liu[1,2], Hao Ke[1,2]

[1]Chinese Antarctic Center of Surveying and Mapping, Wuhan University, Wuhan 430079, China; [2]Key Laboratory of Polar Environment Monitoring and Public Governance, Wuhan University, Ministry of Education, Wuhan 430079, China; wangyueyun@whu.edu.cn

A Priori Information-guided Cross-domain Building Extraction Method

Shaoxuan Zhao, **Dongyang Hou**, Xiaoguang Zhou

Central South University, People's Republic of China; houdongyang1986@163.com

Environmental Drivers of the Spatio-temporal Variations of Chlorophyll-a within Coastal Polynyas in the Ross Sea

Mingxing Cha[1,2], David Antoine[2,3], Juan Li[2,3], Xiaoping Pang[1,4]

[1]Chinese Antarctic Center of Surveying and Mapping, Wuhan University, Wuhan, 430079, China; [2]Remote Sensing and Satellite Research Group, School of Earth and Planetary Sciences, Curtin University, Perth, WA 6845, Australia; [3]ARC Australian Centre for Excellence in Antarctic Sciences (ACEAS), University of Tasmania, Hobart, TAS, 7001, Australia; [4]Key Laboratory of Polar Environment Monitoring and Public Governance, Wuhan University, Ministry of Education, Wuhan 430079, China; mx.cha@whu.edu.cn

Integration of satellite imagery and cropping systems model to determine major crop yields in data scarce environments

Waqas Ahmad[1], **Azeem Khan**[2]

[1]Precision Agriculture and Analytics Lab, University of Agriculture Faisalabad, Pakistan; [2]NSW Government, Department of Climate Change, Energy, the Environment and Water; vakasahmad@gmail.com

Satellite Remote Sensing based Maize Phenology Extraction without Long-Term Ground Observations

Xiang Zhang, Linyi Hou, Nengcheng Chen

National Engineering Research Center of Geographic Information System, School of Geography and Information Engineering, China University of Geosciences (Wuhan), Wuhan, 430074, China; zhangxiang76@cug.edu.cn

Comparison of Urban Environment Factors for Solar-Powered Vehicles

Jiyoon Ku[1], Hyeong-Dong Park[2,3]

[1]Dept. of Energy Systems Engineering, Seoul National University, 08826 Seoul, South Korea; [2]Dept. of Energy Resources Engineering, Seoul National University, 08826 Seoul, South Korea; [3]Research Institute of Energy and Resources, Seoul National University, 08826 Seoul, South Korea; rnldbs9808@snu.ac.kr

WG 8 - Session 1: Digital Twins for Mobility and Navigation

Time: Friday, 25/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Sirius
Session Chair: Zhizhong Kang
Session Chair: Wen Xiao

10:30am - 10:50am

3D Voxel-based Path Planning for AVs in Dynamic Complex Environments

Tailin Gong, <u>Zhiyong Wang</u>, Zhaoyu Lin

School of Civil Engineering and Transportation, South China University of Technology; zwang1984@scut.edu.cn

10:50am - 11:10am

An automatic mapping method of navigation map for outdoor road scenes

<u>Xiaoyu Guo</u>[1,2,3], Zhizhong Kang[1,2,3], Chenming Ye[1,2,3], Xiaoran Wang[1,2,3]

[1]School of Land Science and Technology, China University of Geosciences (Beijing); [2]Research Center of Lunar and Planetary Remote Sensing Exploration, China University of Geosciences (Beijing); [3]Subcenter of International Cooperation and Research on Lunar and Planetary Exploration, Center of Space Exploration, Ministry of Education of The People's Republic of China; guoxiaoyu@email.cugb.edu.cn

11:10am - 11:30am

Robust and Accurate Visual Geo-localization using Prior Map Constructed by handheld LiDAR SLAM with Camera Image and Terrestrial LiDAR point cloud

<u>Jing Li</u>

Aerospace Information Research Institute, Chinese Academy of Sciences, China, People's Republic of; lijing202115@aircas.ac.cn

11:30am - 11:50am

Multi-modal land cover classification of historical aerial images and topographic maps: A comparative study

Mareike Dorozynski[1], Frank Thiemann[2], Monika Sester[2], <u>Franz Rottensteiner</u>[1], Thorsten Dahms[3], Michael Hovenbitzer[3]

[1]Institue of Photogrammetrie and GeoInformation, Leibniz Universität Hannover, Germany; [2]Institue of Cartography and Geoinformatics, Leibniz Universität Hannover, Germany; [3]Federal Agency for Cartography and Geodesy, Germany; rottensteiner@ipi.uni-hannover.de

11:50am - 12:00pm

Ecological influence of oasisization on adjacent regions

<u>Xueyuan Zhang</u>,[2], Yongze Song[2], Dewan Ashraf[1], Zecheng Guo[3]

[1]College of Earth and Environmental Sciences, Lanzhou University, Lanzhou, Gansu, 730000, China.; [2]School of Design and the Built Environment, Curtin University, Bentley, Australia; [3]Spatial Sciences Discipline, School of Earth and Planetary Sciences, Curtin University, Perth, WA 6102, Australia; zxygis@126.com

UPINLBS Session 2.1: Universal Positioning, Indoor Navigation and Location-Based Services

Time: Friday, 25/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Orion
Session Chair: Yanyan Xu
Session Chair: Yan Li

10:30am - 10:50am

Bivariate Correlation-Based Attack: A Challenge for Privacy Preservation of Location Sequence Data

Lihui Mao[1], Zhengquan Xu[1,2]

[1]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China;
[2]Collaborative Innovation Center for Geospatial Technology, Wuhan, China; maolihui@whu.edu.cn

10:50am - 11:00am

LEO Navigation Augmentation System- New opportunity to support Autonomous Driving

Lei Wang

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China;
lei.wang@whu.edu.cn

11:00am - 11:10am

The State-of-the-Art in Smartphone Positioning

Günther Retscher
TU Wien, Austria; guenther.retscher@tuwien.ac.at

11:10am - 11:20am

Enhanced Anti-Jamming Performance in GNSS Receivers: An Adaptive Method

Mengyu DING, Wu CHEN, Xiaolong MI, Duojie WENG, Yang YANG, Huan LUO
Dept. of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University, Hong Kong S.A.R. (China);
mengyu.ding@connect.polyu.hk

11:20am - 11:40am

Selective Encryption Algorithm for Vectoral Geographic Data under Feature Point Grouping Strategy

Qianwen Zhou[1,2], Ying Xiong[1,2], Changqing Zhu[1,2], Na Ren[1,2]

[1]Nanjing Normal University, China; [2]State Key Laboratory Cultivation Base of Geographical Environment Evolution, Nanjing, China;
zqw@njnu.edu.cn

11:40am - 12:00pm

Privacy-preserving indoor localization in cloud environments based on ranging transformation and inner product encryption

Zhiheng Wang, Yanyan Xu, Bo Zhang, Xue Ouyang
State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430072,;
wangzhih@whu.edu.cn

WG 3 - Session 1: Geo-computation and Geo-simulation

Time: Friday, 25/Oct/2024: 10:30am - 12:00pm · *Location:* Room: Rottnest Island
Session Chair: Rui Li
Session Chair: Bi Yu Chen

10:30am - 10:50am

Semantic Time-Geographic Modelling and Analysis

Bi Yu Chen, Yu Zhang, Tao Jia

LIESMARS, Wuhan University, Wuhan, China; chen.biyu@whu.edu.cn

10:50am - 11:10am

Efficient rendering of digital twins consisting of both static and dynamic data through improved memory management

Aleksandar Atanasov, Benedikt Kottler, Dimitri Bulatov

Fraunhofer IOSB, Germany; benedikt.kottler@iosb.fraunhofer.de

11:10am - 11:30am

A Coupled CA Urban Development Model (UDM) and Urban Fabric Generator (UFG) for the Assessment of Climate Hazards on Future Urban Development

Stuart Barr, Alistar Ford, Vassilis Glenis, Craig Robson, Olivia Butters, James Virgo

Newcastle University, United Kingdom; stuart.barr@ncl.ac.uk

11:30am - 11:40am

How does urban morphology influence the Land Surface Temperature: a detailed daytime and nighttime analysis using multi-data sources?

Percy Yvon Rakoto, Chayn Sun, Priyadarsini Rajagopalan, Amy Griffin

RMIT University, Australia; s3694613@student.rmit.edu.au

11:40am - 12:00pm

City-wide solar radiation potential analysis by coupling physical modelling and machine learning

Xiana Chen[1,2,3,4], Junxian Yu[1,2,3,4], Wei TU[1,2,3,4], Long CHEN[5]

[1]Guangdong Key Laboratory of Urban Informatics, Shenzhen University, Shenzhen, Guangdong 518060, China;; [2]Ministry of Natural Resources Key Laboratory for Geo-Environmental Monitoring of Great Bay Area, Shenzhen University; [3]Ministry of Natural Resources Key Laboratory for Geo-Environmental Monitoring of Great Bay Area, Shenzhen University, Shenzhen, Guangdong 518060, China; [4]School of Architecture and Urban Planning, Shenzhen University, Shenzhen, Guangdong 518060, China; [5]State Key Laboratory of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences, Beijing, China;; tuwei@szu.edu.cn

WG 8 - Session 2: Digital Twins for Mobility and Navigation

Time: Friday, 25/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Sirius
Session Chair: Zhiyong Wang
Session Chair: Tengteng Qu

12:00pm - 12:20pm

An Indoor-Outdoor Layered HD Map Construction for Unmanned Ground Vehicles

<u>Huimin Gao</u>[1,3], Ruofei Zhong[1,3], Xingyu Qi[1,3], Donghai Xie[1,3], Zhenxing Sun[1,2,3], Haili Sun[1,3]

[1]College of Resources, Environment and Tourism, Capital Normal University, Beijing, People's Republic of China; [2]Zhengtu 3D (Beijing) Laser Technology Co., Ltd., Beijing, People's Republic of China; [3]Key Laboratory of 3-Dimensional Information Acquisition and Application, Ministry of Education, People's Republic of China; 543177458@qq.com

12:20pm - 12:40pm

A multi-scene roadside lidar benchmark towards digital twins of road intersections

Miao Tang, Dianyu Yu, Chengwen Song, Peiguang Li, Pu Zhao, <u>Wen Xiao</u>, Nengcheng Chen

China University of Geosciences, China, People's Republic of; wen.xiao@cug.edu.cn

12:40pm - 12:50pm Warning: The presentations finish prior to the end of the session!

Evaluation of the High-resolution Urban Thermal Sharpener (HUTS) downscaling method for urban areas using Landsat 8/9 and Sentinel 2

<u>Ratovoson Robert Andriambololonaharisoamalalala</u>[1], Petra Helmholz[1], Ivana Ivanova[1], Eriita Jones[1], Susannah Soon[1], Dimitri Bulatov[2], Yongze Song[1]

[1]Curtin University, Australia; [2]Institute of Optronics, System Technologies and Image Exploitation (IOSB), Germany; r.andriamb@student.curtin.edu.au

WG 7 - Session 1: Intelligent Systems in Sensor Web and IoT

Time: Friday, 25/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Pleiades
Session Chair: Monica Wachowicz
Session Chair: Songnian Li

12:00pm - 12:20pm

Crowd Controls Crowd: Quality Improvement of Polygon Integration in Paid Crowdsourcing

David Collmar, Volker Walter, Uwe Sörgel

Universität Stuttgart, Germany; david.collmar@ifp.uni-stuttgart.de

12:20pm - 12:40pm

Exploring spatiotemporal interaction patterns of dockless shared bicycle networks： A case study of Shenzhen, China

Xiaoqian Hu[1,2]**, Yang Chen**[1,2]**, Shishuo Xu**[1,2]**, Songnian Li**[3]

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12:40pm - 1:00pm

Smart Building Digital Twin for Interior Water Distribution System Management

Gopika Rajan, Songnian Li

Toronto Metropolitan University, Toronto, Ontario, Canada; gopika.rajan@torontomu.ca

UPINLBS Session 2.2: Universal Positioning, Indoor Navigation and Location-Based Services

Time: Friday, 25/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Orion
Session Chair: Lei Wang
Session Chair: Yue Yu

12:00pm - 12:20pm

Indoor localization in commercial 5G environment with single BS

Xin Zhou, Liang Chen, Yue Dai, Yanlin Ruan

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China;
daiyue2022@whu.edu.cn

12:20pm - 12:40pm

A fast and stable calibration method for VLP system without any geometric measurement

Tianming Huang[1], Yuan Zhuang[1,2], Xiansheng Yang[1], Xiao Sun[1]

[1]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430072, China; [2]Luojia Laboratory and the Wuhan Institute of Quantum Technology, Wuhan 430072, China; huangtianmingw@outlook.com

12:40pm - 1:00pm

Analysis of Machine Learning-Based NLOS Signal Identification Algorithm for UWB Indoor Localization Using CIR Waveform Features

Kai Wang[1], Cheng Yang[2]

[1]Henan Polytechnic University, China, People's Republic of; [2]China University of Geosciences, China, People's Republic of;
windkk1999@163.com

WG 3 - Session 2: Geo-computation and Geo-simulation

Time: Friday, 25/Oct/2024: 12:00pm - 1:00pm · *Location:* Room: Rottnest Island
Session Chair: Bi Yu Chen
Session Chair: Wei TU

12:00pm - 12:20pm

Comparison study of three building regularization algorithms

Dimitri Bulatov[1], Yousif Mousa[2], Petra Helpholz[3]

[1]Fraunhofer IOSB Ettlingen, Germany; [2]Civil Engineering Department, Al-Muthanna University, Al-Muthanna, Iraq; [3]School of Earth and Planetary Sciences, Curtin University, Perth, WA 6845, Australia; dimitri.bulatov@iosb.fraunhofer.de

12:20pm - 12:40pm

Energy Consumption-Driven UAV Dock Deployment Planning for Power Inspection

Jing Fu[1], Guiwei Shao[1], Zhiye Wang[2,3,4], Shaolong Wu[2,3,4], Huanqing Cai[1], Huaxi Wu[1], Chi Chen[2,3,4], Bisheng Yang[2,3,4]

[1]China Electric Power Research Institute Co., Ltd, Wuhan, China; [2]State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China; [3]Engineering Research Center for Spatio-temporal Data Smart Acquisition and Application, Ministry of Education of China, China; [4]Institute of Geo-spatial intelligence, Wuhan University, Wuhan, China; shaolongwu@whu.edu.cn

12:40pm - 12:50pm

Multi-scale Population Activity Unit Interaction Network Model

Xiaorui Yang, Rui Li

Wuhan University, China, People's Republic of; xiaoruiyang@whu.edu.cn

12:50pm - 1:00pm

Real-world analysis of private autonomous vehicles empty cruising impact on parking dynamics and traffic flow

Hamid Bagha, Farhana Murtaza Choudhury, Stephan Winter

University of Melbourne, Australia; baghah@unimelb.edu.au

WG 4 - Session 4: Data Management for Spatial Scenarios

Time: Friday, 25/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Sirius
Session Chair: Markus Jahn

2:00pm - 2:20pm

Acquiring Semantic Information of Precast Concrete Pipe Using Geometric Feature Extraction from Mobile Laser Scanning Point Cloud

Kartika Nur Rahma Putri[1,2], **Xuesong Shen**[1], **Mitko Aleksandrov**[1], **Khalegh Barati**[1], **James Linke**[3]

[1]School of Civil and Environmental Engineering, University of New South Wales, Sydney, Australia; [2]Department of Civil and Environmental Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia; [3]Linke & Linke Surveys, Sydney, Australia; k.putri@unsw.edu.au

2:20pm - 2:40pm

Vertical Datum Portal

Richard Nicholls

Department of Transport, WA, Australia; Richard.Nicholls@transport.wa.gov.au

2:40pm - 2:50pm

A window selection algorithm for enhanced spatial point pattern analysis

Kabelo Mahloromela, **Inger Fabris-Rotelli**

University of Pretoria, South Africa; kabelo.mahloromela@up.ac.za

2:50pm - 3:10pm

Geometry, Topology and p-Adic Numbers in Geospatial Data Modelling, Management and Processing: Review and Future Approaches

Patrick Bradley[1], **Markus Jahn**[1], **Martin Breunig**[1], **Mulhim Al-Doori**[2], **Emmanuel Stefanakis**[3], **Paul Kuper**[1]

[1]Karlsruhe Institute of Technology, Germany; [2]University of Science and Technology of Fujairah, U.A.E.; [3]University of Calgary, Canada; markus.jahn@kit.edu

3:10pm - 3:30pm

A review of existing sources for the design of an Archaeological Underwater Cultural Heritage database of Puglia Region (Italy)

Alessandra Spreafico[1], **Elisabetta Colucci**[1], **Filiberto Chiabrando**[1], **Rita Auriemma**[2]

[1]Laboratory of Geomatics for Cultural Heritage (LabG4CH), Department of Achitecture and Design (DAD), Politecnico di Torino, Viale Pier Andrea Mattioli, 39, Torino (TO), Italy; [2]Department of Cultural Heritage, University of Salento, Via Dalmazio Birago, 64 - LECCE (LE), Italy; elisabetta.colucci@polito.it

UPINLBS Session 2.3: Universal Positioning, Indoor Navigation and Location-Based Services

Time: Friday, 25/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Orion
Session Chair: Chen Wu
Session Chair: Liang Chen

2:00pm - 2:20pm

Ground Constrained 3D Lidar SLAM Design and Implementation

Wenwen Tian, Puwei Yang, Chao Yang

China University of Geosciences(Wuhan), China, People's Republic of; geotww@163.com

2:20pm - 2:30pm

Tightly Coupled GNSS/PDR/BLE System for Pedestrian Navigation in Dense Urban Areas

Jingxian Wang[1], Wu Chen[1], Duojie Weng[1], Long Tang[2]

[1]The Hong Kong Polytechnic University, Hong Kong S.A.R. (China); [2]Guangdong University of Technology, China; jingxian.wang@connect.polyu.hk

2:30pm - 2:40pm

A robust algorithm for low-cost MEMS_IMU vehicle integrated navigation based on motion constraint and BP neural network

Ying Xu, Jinjie Sun, Kun Wang

Shandong University of Science and Technology, China, People's Republic of; yingxu@sdust.edu.cn

2:40pm - 3:00pm Warning: The presentations finish prior to the end of the session!

A Lightweight Blind Obstacle Detection Network for Mobile Applications

jianghong zhao, Ziyu Liu, Ziling Liu, Ailin Xu, Jifu Zhao

School of Geomatics and Urban Spatial Information, Beijing University of Civil Engineering and Architecture, China, People's Republic of; zhaojiangh@bucea.edu.cn

WG 7 - Session 2: Intelligent Systems in Sensor Web and IoT

Time: Friday, 25/Oct/2024: 2:00pm - 3:30pm · *Location:* Room: Rottnest Island
Session Chair: Shishuo Xu
Session Chair: Songnian Li

2:00pm - 2:20pm

Spatial-temporal data model for indoor fire response considering multi-factors

Jiahui Wang, Jie Jiang, Xian Guo

School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, Beijing, China; wangqy525@gmail.com

2:20pm - 2:40pm

Design and Implementation of a Geographic Scenario Computation System Based on Knowledge Base

Yunlong Feng[1], Changfeng JIng[2], Jianing Li[1], Tao Liang[1]

[1]Beijing University of Civil Engineering and Architecture, China, People's Republic of; [2]China University of Geosciences, China, People's Republic of; jingcf@cugb.edu.cn

2:40pm - 3:00pm Warning: The presentations finish prior to the end of the session!

YOLO-CLIP: A Remote Sensing Object Detection Model with Textual Feature Guidance

Zhaoming WU, Yue XU, Zhengchao CHEN

Aerospace Information Research Institute, Chinese Academy of Sciences, China, People's Republic of; xuyue@aircas.ac.cn

Afternoon Tea - Poster Session 6: ICWG IV/III/II and UPINLBS

Time: Friday, 25/Oct/2024: 3:30pm - 4:00pm · *Location:* Conference Venue

Refined Classification of Local Climate Zones by Incorporating the Effect of Blue-Green Spatial Landscape Patterns

Jie Chen

Central South University, People's Republic of China; cj2011@csu.edu.cn

A UNIQUE RULESET FOR SALTMARSH AND MANGROVE MONITORING USING SENTINEL -2

Israt Jahan Diti[1], Sikdar Rasel[2]

[1]Rajshahi University, Bangladesh, People's Republic of; [2]DCCEEW, New South Wales, Australia; isratditi@yahoo.com

Image Classification Algorithms in Remote Sensing: A Comparative Analysis of Traditional and Machine Learning Approaches

Vineesh V

Department of Geography, Government College Chittur, Palakkad, Kerala, India; vineeshvc@gmail.com

Four Pan-Sharpening fusion methods Comparison for Oyster Farming Floating Raft Recognition in Maowei Sea

Zhi Zeng[1], Hui Lin[2], Xiaokui Xie[2], Mingzhong Liang[2], Ning Wu[2], Jixiang Gao[2], Xianfu Ma[2]

[1]Huizhou University, China, People's Republic of; [2]Beibu Gulf University, China, People's Republic of; zengzhi@hzu.edu.cn

Influence of Urban Form on Surface Urban Heat Island at County Scale: Insights from Explainable Machine Learning

Yujia Ming[1], Yong Liu[1], Yongze Song[2]

[1]School of Management Science and Real Estate, Chongqing University, Chongqing 400045, P.R. China; [2]School of Design and the Built Environment, Curtin University, Perth, 6845, Australia; 20150659@cqu.edu.cn

Accuracy Assessment of Land Use Land Cover classification using Machine Learning Classifiers in Google Earth Engine, A Case Study of Jammu District

Sheeba Khan[1], Ashutosh Bhardwaj[2], Sakthivel M[3]

[1]University of Madras,Department of Geography, Chennai, India; [2]Indian Institute of Remote Sensing, Dehradun, Uttarakhand, India; [3]University of Madras,Department of Geography,Chennai, India; sheebakhan1802@gmail.com

Research on Soil Erosion Assessment and Main Influencing Factors Analysis in the Changhua River Basin Based on the Chinese Soil and Water Loss Equation

Zhenqi Song, Yuefeng Lu

Shandong University of Technology; 22507020020@stumail.sdut.edu.cn

Precision Agriculture: A Web-GIS Framework for Health and Stress Assessment Using Multi-Source Remote Sensing Data

Sahil Bhakal[1], Akshay Pandey[2], Kamal Jain[3]

[1]Panjab University Sec 14 Chandigarh, India, India; [2]Indian Institute of Technology Roorkee IITR, India; [3]Indian Institute of Technology Roorkee IITR, India; sahilsinghbhakal@gmail.com

Sensitivity analysis of highway landslides in Guangxi, China

xueyuan Li, yuefeng Lu

Shandong University of Technology, China, People's Republic of; 2532441802@qq.com

Perspective transform-based depth estimation of monocular camera for electrocution threat determination of construction machinery

Tong Yang[1], Shuangfeng Wei[1], Liang Fan[2], Lei Zhang[2]

[1]School of Geomatics and Urban Spatial Informatics, Beijing University of Civil Engineering and Architecture, China; [2]Guangzhou Zhongke Zhixun Technology Co., Guang Zhou, Guang Dong, China; 2108570022132@stu.bucea.edu.cn

Research on Orbit Determination Performance of LEO Satellite Simulation Data

Le Wang, Qining Wang, Wen Lai, Haonan She

CHANG'AN UNIVERSITY, China, People's Republic of; rexlele@163.com

A LiDAR SLAM Algorithm Considering Dynamic Extraction of Feature Points in Underground Coal Mine

Xiaohu Lin, Tao Yan, Wanqiang Yao

Xi'an University of science and technology, People's Republic of China; xhlin214@xust.edu.cn

Evaluation of enhanced information and service performance of BDSBAS

Guanwen HUANG, Haoyue DUAN, Qin ZHANG, Ziwei WANG, Le Wang

Chang'an university, China, People's Republic of; huang830928@chd.edu.cn