**ISPRS Workshop Indoor 3D 2017**

**Preliminary Schedule**

**Sept 19-20, 2017**, during ISPRS Geospatial Week 2017

Wuhan, Hubei, China

Website: <http://indoor3d.net/2017>

The ISPRS workshop on Indoor3D previously has taken place in Cape Town (2013) and Athens (2016). Its 3rd occurrence is in Wuhan, China during the ISPRS Geospatial Week 2017. Indoor 3D 2017 is organized by the ISPRS Working Group IV/5 in cooperation with Working Groups I/6 and I/7. The workshop pursues the following main objectives:

* Advance knowledge in location-based big data and pedestrian movement in indoor/underground/outdoor seamless environments.
* Promote and advance indoor mapping, modelling and navigation research within the ISPRS community.
* Examine and evaluate the state of the art in all aspects of indoor 3D mapping, navigation, modelling and LBS.
* Promote the application of indoor 3D models for navigation, crisis decision support systems, simulations, information systems, and augmented systems.
* Share best practices, discuss user requirements and explore opportunities for future research directions.

In total, **24 oral presentations** arescheduled in six oral sessionsand **14 posters** will be presented within the joint poster session of the Geospatial Week.

**Organizing ISPRS Working Groups**

ISPRS WG IV/5: Indoor/Outdoor Seamless Modelling, LBS and Mobility

ISPRS WG I/6: Multi-sensor Integration and Fusion

ISPRS WG I/7: Mobile Mapping Technology

**Committee**

**Chair:**  
Zhizhong Kang, China University of Geosciences, Beijing, China (ISPRS WG IV/5)

**Co-chairs:**  
Naser El-Sheimy, The University of Calgary, Canada (ISPRS WG I/7)  
Cheng Wang, Xiamen University, China (ISPRS WG I/6)  
Ruizhi Chen, Wuhan University, China  
Kourosh Khoshelham, University of Melbourne, Australia (ISPRS WG IV/5)  
Michael Peter, University of Twente, The Netherlands (ISPRS WG IV/5)

**Secretary**  
Lucía Díaz Vilariño, University of Vigo, Spain (IV/5)

**Program Committee:**

Abdoulaye Abou Diakité, Delft University of Technology, The Netherlands  
Antonio  Adán Oliver, Universidad de Castilla La Mancha, Spain  
Ben Gorte, Delft University of Technology, The Netherlands  
Beril Sirmacek, Delft University of Technology, The Netherlands  
Christophe Claramunt, Naval Academy Research Institute, France  
David Sánchez Rodríguez, University of Las Palmas de Gran Canaria, Spain  
Derek Lichti, University of Calgary, Canada  
Edward Verbree, Delft University of Technology, The Netherlands  
Eric Guilbert, Laval University, Canada  
Filip Biljecki, Delft University of Technology, The Netherlands  
George Sithole, University of Cape Town, South Africa  
Gerhard Groeger, University of Bonn, Germany  
Giuseppe Conti, Trilogis,Italy   Nively, France  
Hiroyuki Miyazaki, The University of Tokyo, Japan  
Ihab Hidjazi, Department of Urban Planning Engineering, An-Najah National University  
Jianga Shang, China University of Geosciences (Wuhan), National Engineering Research Center for Geographic Information Systems, China  
Jie Jiang, National Geomatics Center of China, China (ISPRS TC III)  
Jingbin Liu, Wuhan University, China  
Jun Zhu, Southwest Jiaotong University, China  
Ken Arroyo Ohori, Delft University of Technology, The Netherlands  
Ki-Joune Li, Department of Computer Science,Pusan National University, Korea  
Mahmoud Delavar, University of Tehran, Iran  
Mattia Previtali, Politecnico di Miano, Italy  
Margarita Kokla, National Technical University of Athens, Greece  
Maria Antonia Brovelli, Politecnico di Milano, Italy  
Martin Breunig, Karlsruhe Institute of Technology, Germany  
Martin Kada, Institute for Photogrammetry, Universität Stuttgart, Germany  
Masafumi Nakagawa, Shibaura Institute of Technology, Japan  
Pawel Boguslawski, University of the West of England, UK  
Qing Zhu, Southwest Jiaotong University, China  
Ruisheng Wang, University of Calgary, Canada  
Sergio Ilarri, University of Zaragoza,Spain  
Sisi Zlatanova, Delft University of Technology, The Netherlands (ISPRS TC IV)  
Stephan Winter, The University of Melbourne, Australia  
Thomas Kolbe, Technische Universität München, Germany  
Susanne Becker, University of Stuttgart, Germany  
Umit Isikdag, Mimar Sinan Fine Arts University, Turkey

**Local Organization Committee:**

Jingbin Liu, Wuhan University, China  
Linlin Xu, China University of Geosciences, Beijing, China  
Teng Hu, China University of Geosciences, Beijing, China  
Zhen Wang, China University of Geosciences, Beijing, China

**Session Overview**

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| **Date** | **Time** | **Contents** | | **Chair** | **Room** |
|  | 9:00-9:10 | **Welcome address -** *Prof.**Dr. Zhizhong Kang* | |  | Shennongjia Hall |
| Tuesday  19th, Sep  AM | 9:10-9:55 | **Keynote Speech** | **Localization using WI-FI – Challenges and Perspectives**  *Prof. Dr. Guenther Retscher, Vienna University of Technology, Austria* | Zhizhong Kang | Shennongjia Hall |
| 9:55-10:30 | **Indoor3D-01:** Mapping and positioning I | | Kourosh Khoshelham,  Jingbin Liu | Shennongjia Hall |
| 10:30-11:00 | Tea Break | | | |
| 11:00-12:30 | **Indoor3D-02:** Spatial information modellingI | | Michael Peter,  Jianga Shang | Shennongjia Hall |
| Lunch | | | | | |
|  | 14:00-15:30 | **Indoor3D-03:** Location-based services I | | Ruizhi Chen,  Qing Zhu | Shennongjia Hall |
| 15:30-16:00 | Tea Break | | | |
| 16:00-17:30 | **Indoor3D-04:** Spatial information modelling II | | Naser El-Sheimy,  Guenther Retscher | Shennongjia Hall |
| Dinner & Rest | | | | | |
| Wednesday  20th, Sep  AM | 09:00-9:45 | **Keynote Speech** | **High Precise Smartphone Positioning Indoors Based on Multiple Sources**  *Prof. Dr. Ruizhi Chen, Wuahan University, China* | Zhizhong Kang | Shennongjia Hall |
| 9:45-10:30 | **Indoor3D-05:** Spatial information modelling III | | Cheng Wang,  Masafumi Nakagawa | Shennongjia Hall |
| 10:30-11:00 | Tea Break | | | |
| 11:00-12:30 | **Indoor3D-06:** Mapping and positioning II | | Lucía Díaz-Vilariño,  Ruisheng Wang | Shennongjia Hall |
| Lunch | | | | | |
| Wednesday  20th, Sep  PM | 14:00-17:30 | **Poster Session** | |  | TBD |

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| **Indoor3D-01: Mapping and positioning I** | |
| Chair: Kourosh Khoshelham  Co-chair: Jingbin Liu Room: Shennongjia Hall | |
| 9:55-10:30, Tuesday,  19th, Sep | **Title:** ISPRS Benchmark on Indoor Modelling  **Authors:** Kourosh Khoshelham, Lucía Díaz Vilariño, Michael Peter, Zhizhong Kang, and Debaditya Acharya |
| **Title:** Statistical Sensor Fusion of a 9-DoF MEMS IMU for Indoor Positioning  **Authors:** Jacky Chow |

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| **Indoor3D-02: Spatial information modelling I** | |
| Chair: Michael Peter  Co-chair: Jianga Shang Room: Shennongjia Hall | |
| 11:00-12:30,  Tuesday,  19th, Sep | **Title:** Automatic Monitoring of Tunnel Deformation Based on High Density Point Clouds Data  **Authors:** Liming Du, Ruofei Zhong, Haili Sun and Qiong Wu |
| **Title:** Exploiting Indoor Mobile Laser Scanner Trajectories for Semantic Interpretation of Point Clouds  **Authors:** Shayan Nikoohemat, Michael Peter, Sander Oude Elberink and George Vosselman |
| **Title:** A conceptual framework for indoor mapping by using grammars  **Authors:** Xuke Hu, Hongchao Fan, Alexander Zipf, Jianga Shang and Fuqiang Gu |
| **Title:** Automatic Generation of Indoor Navigable Space Using a Point Cloud And its Scanner Trajectory  **Authors:** Bart Staats, Abdoulaye A. Diakité, Robert L. Voûte and Sisi Zlatanova |
| **Title:** Using OpenStreetMap data to generate building models with their inner structures for 3D maps  **Authors:** Zhiyong Wang and Alexander Zipf |

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| **Indoor3D-03: Location-based services I** | |
| Chair: Ruizhi Chen  Co-chair: Qing Zhu Room: Shennongjia Hall | |
| 14:00-15:30, Tuesday,  19th, Sep | **Title:** Relative Panoramic Camera Position Estimation for Image-based Virtual Reality Networks in Indoor Environments  **Authors:** Masafumi Nakagawa, Koji Akano, Tamaki Kobayashi and Yasushi Sekiguchi |
| **Title:** Indoor Map aided INS/Wi-Fi integrated LBS on smartphone platform  **Authors:** Chunyang Yu and Naser El-Sheimy |
| **Title:** Research on Personnel Evacuation Based on Social Force Model  **Authors:** Liuwen, Dengzhongliang, Liwenyi and Linjie |
| **Title:** BIM-based Indoor Path Planning Considering Obstacles  **Authors:** Man Xu, Shuangfeng Wei, Sisi Zlatanova and Ruiju Zhang |
| **Title:** Location Distribution Optimization Of Photographing Sites for Indoor Panorama Modeling  **Authors:** Shuming Zhang, Jiaman Wu, Yueyao Zhang, Xinyue Zhang, Zhejun Xin and Jingbin Liu |

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| **Indoor3D-04: Spatial information modelling II** | |
| Chair: Naser El-Sheimy  Co-chair: Guenther Retscher Room: Shennongjia Hall | |
| 16:00-17:30, Tuesday,  19th, Sep | **Title:** Scene segmentation from Indoor RGB-D Images using Semi-Supervised Fully Convolutional Networks  **Authors:** Wang Zhen, Li Te, Pan Lijun and Kang Zhizhong |
| **Title:** Extracting Topological Relations Between Indoor Spaces From Point Clouds  **Authors:** Ha Tran, Kourosh Khoshelham, Allison Kealy and Lucía Díaz-Vilariño |
| **Title:** Indoor Modelling From Slam-based Laser Scanner: Door Detection And Envelop Reconstruction  **Authors:** Lucía Díaz Vilariño, Edward Verbree, Sisi Zlatanova and Abdoulaye Abou Diakité |
| **Title:** Automatic Recognition of Indoor Navigation Elements from Kinect Point Clouds  **Authors:** Liping Zeng and Zhizhong Kang |
| **Title:** Strategies to Evaluate the Visibility Along An Indoor Path in A Point Cloud Representation  **Authors:** Nives Grasso, Edward Verbree, Sisi Zlatanova and Marco Piras |

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| **Indoor3D-05: Spatial information modelling III** | |
| Chair: Cheng Wang  Co-chair: Masafumi Nakagawa Room: Shennongjia Hall | |
| 9:45-10:30, Wednesday,  20th, Sep | **Title:** Parameter estimation and model selection for indoor models based on sparse observations  **Authors:** Youness Dehbi, Sandra Loch-Dehbi and Lutz Plümer |
| **Title:** Indoor Modeling using L-Systems  **Authors:** Michael Peter |

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| **Indoor3D-06: Mapping and positioning II** | |
| Chair: Lucía Díaz-Vilariño  Co-chair: Ruisheng Wang Room: Shennongjia Hall | |
| 11:00-12:30,  Wednesday,  20th, Sep | **Title:** Towards the integration of *IndoorGML* and *IndoorLocationGML* for indoor applications  **Authors:** Liu Liu, Sisi Zlatanova, Qing Zhu, Ki-Joune Li. |
| **Title:** Indoor Positioning Via Visual-Inertial Odometry  **Authors:** Milad Ramezani, Debaditya Acharya, Fuqiang Gu and Kourosh Khoshelham |
| **Title:** Drift-Free Indoor Navigation using Simultaneous Localization and Mapping of the Ambient Heterogeneous Magnetic Field  **Authors:** Jacky Chow |
| **Title:** A Preliminary Work On Layout Slam For Monocular Vision-based Real-time Layout Estimation In Indoor Corridor Environments  **Authors:** Ali Baligh, Gunho Sohn and Mozhdeh Shahbazi |
| **Title:** Line segmentation of 2D laser scanner point clouds for indoor SLAM based on a range of residuals  **Authors:** Michael Peter, Syed Riaz Un Nabi Jafri and George Vosselman |

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| **Poster Session** |
| Date: Wednesday, 20th, Sep, 14:00-17:30 PM Room: TBD |
| **Title:** Indoor Smartphone Navigation Using a Combination of Wi-Fi and Inertial Navigation with Intelligent Checkpoints  **Authors:** Hannes Hofer and Guenther Retscher |
| **Title:** Fusion of Location Fingerprinting and Trilateration Based on the Example of Wi-Fi Positioning  **Authors:** Guenther Retscher |
| **Title:** The Design and Implementation of Indoor Localization Algorithm Using Magnetic Field Based on Smartphone  **Authors:** Jiaxing Liu, Congshi Jiang and Zhongcai Shi |
| **Title:** A Mapping Method of SLAM Based on LOOK UP TABLE  **Authors:** Zemin Wang, Jiansheng Li, Ancheng Wang and Junya Wang |
| **Title:** Research on knowledge-based optimization method of indoor location based on low energy Bluetooth  **Authors:** Chang Li, Guie Li, Yong Deng, Tianli Wang and Zhizhong Kang |
| **Title:** A Statistical Analysis on The System Performance Of A Bluetooth Low Energy Indoor Positioning System in a 3D Environment  **Authors:** Gaston Haagmans, Sandra Verhagen, Robert Voûte and Edward Verbree |
| **Title:** An Indoor Slam Method Based On Kinect And Multi-feature Extended Information Filter  **Authors:** Ming Chang and Zhizhong Kang |
| **Title:** Research on Technology of Modeling Building Fire Scene with Virtual Geographic Environment  **Authors:** Yiquan Song, Liyang Zhao, Min Wei, Hongxin Zhang and Wei Liu |
| **Title:** Automatic indoor building reconstruction from mobile laser scanning data  **Authors:** Lei Xie and Ruisheng Wang |
| **Title:** A Novel Approach For 3D Neighborhood Analysis  **Authors:** Saeid Emamgholian, Mohammad Taleai and Davood Shojaei |
| **Title:** A Extended Maptree-based Model for Indoor Multi-dimensional Spatial Information  **Authors:** Yijie Wu, Jianga Shang, Xuke Hu and Zhiyong Zhou |
| **Title:** Point clouds to indoor/outdoor accessibility diagnosis  **Authors:** Jesús Balado Frías, Lucía Díaz Vilariño and Pedro Arias Sánchez |
| **Title:** Performance Analysis of Classification Methods for Indoor Localization in VLC Networks  **Authors:** David Sánchez-Rodríguez, Itziar Alonso-González, Javier Sánchez-Medina, Carlos Ley-Bosch and Lucía Díaz-Vilariño |
| **Title:** Challenges in Flying Quadrotor Unmanned Aerial Vehicle for 3D Indoor Reconstruction  **Authors:** Jinjin Yan, Nives Grasso, Sisi Zlatanova, Robin Christian Braggaar, Daniel B. Marx |