

ACM SIGSPATIAL 2019

Attendee Information Package



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Corporate Sponsors



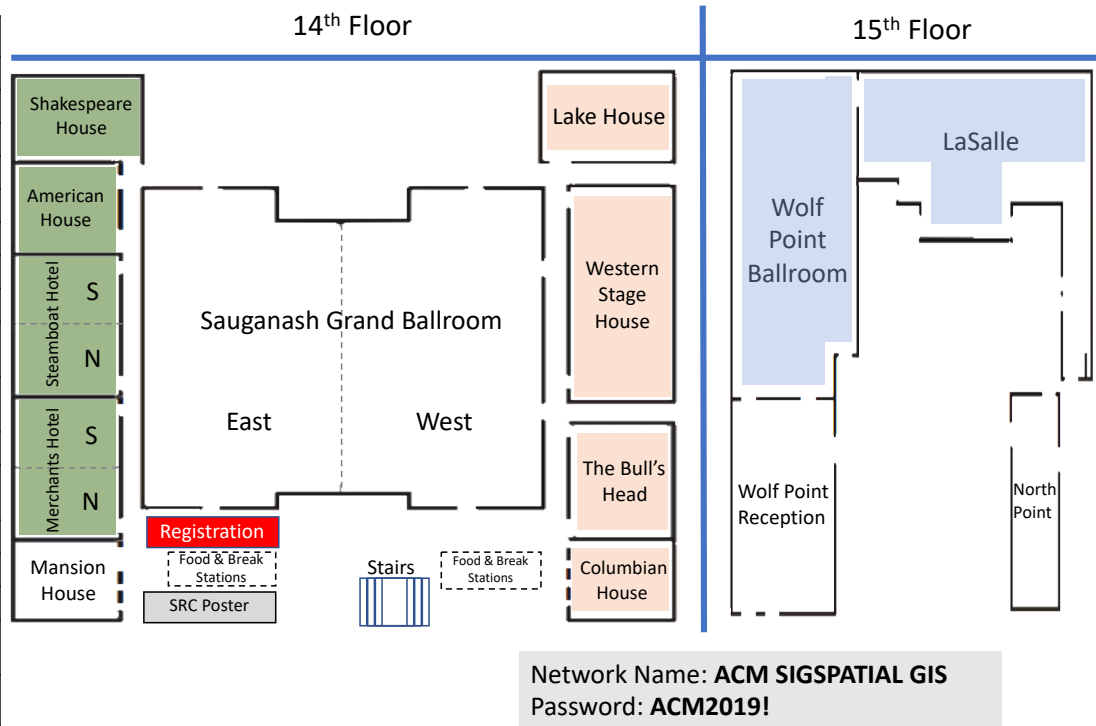
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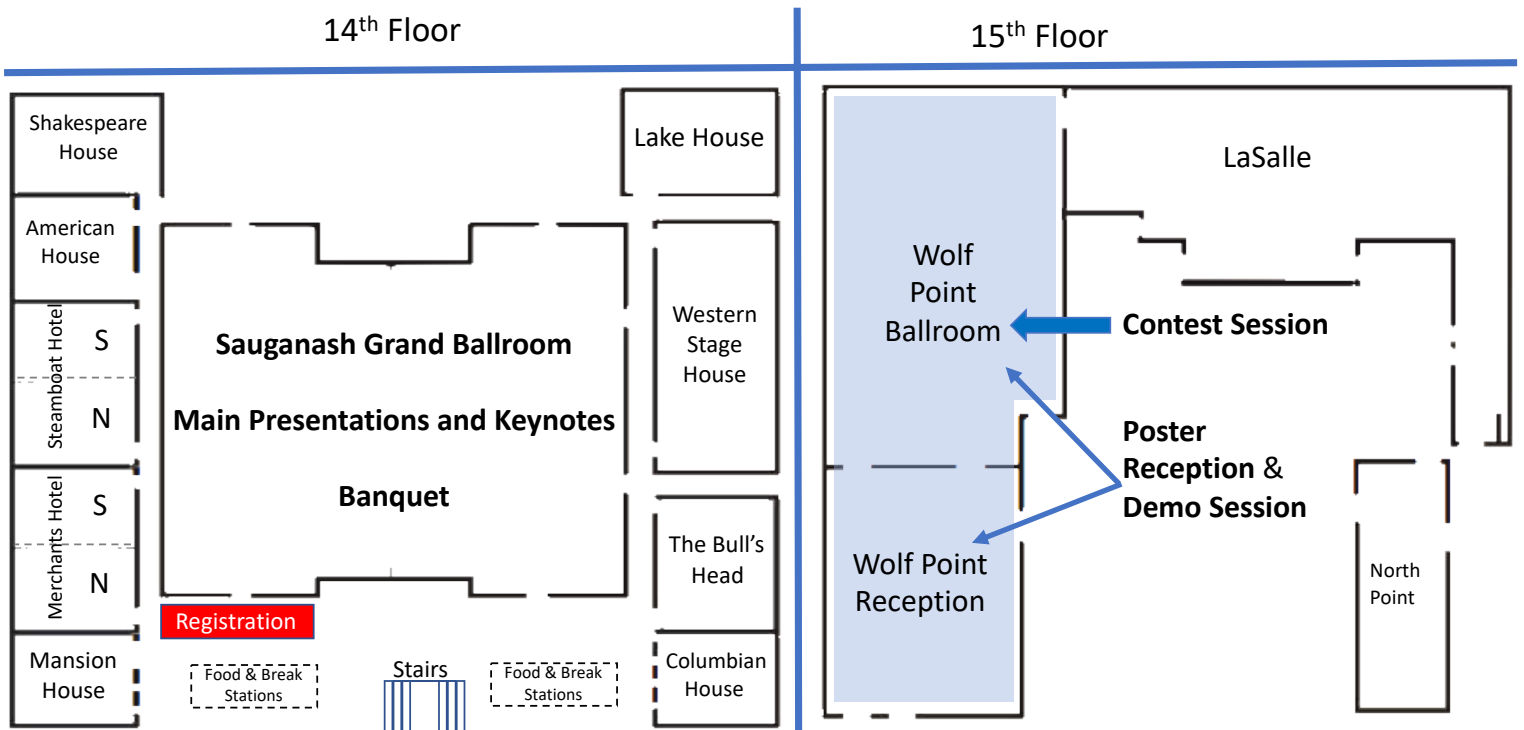
Floor Plans

ACM SIGSPATIAL 2019 Workshops

Workshop	Room
IWCTS	Lake House
SpatialAPI	Western Stage House
EM-GIS	The Bull's Head
GeoEd	Columbian House
LocalRec	Shakespeare House
PredictGIS	American House
LENS	Steamboat Hotel S
ARIC	Steamboat Hotel N
GeoHumanities	Merchants Hotel S (Morning)
GeoSim	Merchants Hotel S (Afternoon)
SpatialGems	Merchants Hotel N
MOVE++	Wolf Point Ballroom (Afternoon)
BigSpatial	LaSalle (Morning)
RAAS	LaSalle (Afternoon)
GeoAI	Sauganash Ballroom E
SRC (presentation)	Sauganash Ballroom W
SRC (poster)	Sauganash Ballroom foyer



ACM SIGSPATIAL 2019 Main Conference



Conference Program

November 6 – November 8

Wednesday, November 6, 2019

7:00 AM - 8:00 AM Breakfast and Registration

8:00 AM - 8:15 AM Opening

8:15 AM - 9:15 AM Session 1: Maps

- **GloBiMaps - A Probabilistic Data Structure for In-Memory Processing of Global Raster Datasets** (*Best Paper Candidate*)
Martin Werner (DLR Oberpfaffenhofen and UniBW Munchen)
- **Exploring Semi-Automatic Map Labeling**
Fabian Klute (Vienna University of Technology), Guangping Li (Vienna University of Technology), Raphael Loffler (Vienna University of Technology), Martin Nollenburg (Vienna University of Technology), Manuela Schmidt (Vienna University of Technology)
- **Qualitative Place Maps for Landmark-based Localization and Navigation in GPS-denied Environments**
Hua Hua (the Australian National University), Peng Zhang (the Australian National University), Jochen Renz (the Australian National University)

9:15 AM - 10:15 AM Invited Talk

10:15 AM - 10:40 AM Break

10:40 AM - 12:00 PM Session 2: Prediction

- **Accident Risk Prediction based on Heterogeneous Sparse Data: New Dataset and Insights**
Sobhan Moosavi (The Ohio State University), Mohammad Hossein Samavatian (The Ohio State University), Srinivasan Parthasarathy (The Ohio State University), Radu Teodorescu (The Ohio State University), Rajiv Ramnath (The Ohio State University)
- **On Predicting Crime with Heterogeneous Spatial Patterns: Methods and Evaluation**
Chuanxiu Xiong (University of Southern California), Ajitesh Srivastava (University of Southern California), Rajgopal Kannan (University of Southern California), Omkar Damle (New York University), Viktor Prasanna (University of Southern California), Errill Southers (University of Southern California)
- **Deciphering Predictability Limits in Human Mobility** (*Best Paper Candidate*)
Douglas Teixeira (Universidade Federal de Minas

Gerais), Aline Viana (Inria, Saclay), Mario S. Alvim (Universidade Federal de Minas Gerais), Jussara Almeida (UFMG)

- **Effective Recycling Planning for Dockless Sharing Bikes**

Cong Zhang (Beijing University of Posts and Telecommunications), Yanhua Li (Worcester Polytechnic Institute), Jie Bao (Urban Computing Business Unit, JD Finance), Sijie Ruan (School of Computer Science and Technology, Xidian University), Tianfu He (Harbin Institute of Technology), Hui Lu (Guangzhou University), Zhihong Tian (Guangzhou University), Cong Liu (The University of Texas at Dallas), Chao Tian (Shenzhen city Tencent computer system Co. Ltd.), Jianfeng Lin (Mobike), Xianen Li (Mobike)

12:00 PM - 1:30 PM Lunch

1:30 PM - 3:00 PM Fast Forward Session

3:00 PM - 3:30 PM Break

3:30 PM - 3:50 PM Session 3: Vision Papers

- **Revolutionizing Tree Management via Innovative Spatial Techniques**
Yiqun Xie (University of Minnesota), Shashi Shekhar (University of Minnesota), Richard Feiock (Florida State University), Joseph Knight (University of Minnesota)
- **Towards Geocoding Spatial Expressions**
Hussein Al-Olimat (Kno.e.sis Center, Wright State University), Valerie Shalin (Kno.e.sis Center, Wright State University), Krishnaprasad Thirunarayan (Kno.e.sis Center, Wright State University), Joy Prakash Sain (Kno.e.sis Center, Wright State University)

3:50 PM - 4:50 PM Session 4: Trajectories

- **Maximum Physically Consistent Trajectories** (*Best Paper Candidate*)
Bram Custers (Eindhoven University of Technology), Mees van de Kerkhof (Utrecht University), Wouter Meulemans (Eindhoven University of Technology), Bettina Speckmann (Eindhoven University of Technology), Frank Staals (Utrecht University)
- **An Experimental Evaluation of Grouping Definitions for Moving Entities**
Lionov Wiratma (Utrecht University), Marc Van Kreveld (Utrecht University), Maarten Loffler (Utrecht University), Frank Staals (Utrecht University)
- **HTTE: A Hybrid Technique For Travel Time Estimation In Sparse Data Environments**
Nikolaos Zygouras (NKUA), Nikolaos Panagiotou (NKUA), Dimitrios Gunopulos (NKUA), Yang Li (Tsinghua Berkeley Shenzhen Institute), Leonidas Guibas (Stanford University)

4:50 PM - 5:00 PM Break

5:00 PM - 6:00 PM Sponsors Presentation Session

6:00 PM - 7:00 PM Break

7:00 PM - 11:00 PM Poster Reception, Demo Session

Thursday, November 7, 2019

7:00 AM - 8:00 AM Breakfast and Registration

8:00 AM - 9:00 AM Session 5: Indoor Environments and Localization

- **MonoDCell: A Ubiquitous and Low-Overhead Deep Learning-based Indoor Localization with Limited Cellular Information**
Hamada Rizk (Egypt-Japan University of Science and Technology), Moustafa Youssef (Alexandria University)
- **Efficient Beacon Placement Algorithms for Time-of-Flight Indoor Localization**
Haotian Wang (Stony Brook University), Niranjini Rajagopal (Carnegie Mellon University), Anthony Rowe (Carnegie Mellon University), Bruno Sinopoli (Carnegie Mellon University), Jie Gao (Stony Brook University)
- **Bayesian Surprise in Indoor Environments**
Sebastian Feld (Ludwig Maximilian University of Munich), Andreas Sedlmeier (Ludwig Maximilian University of Munich), Markus Friedrich (Ludwig Maximilian University of Munich), Jan Franz (Ludwig Maximilian University of Munich), Lenz Belzner (MaibornWolff)

9:00 AM - 10:00 AM Invited Talk

10:00 AM - 10:30 AM Break

10:30 AM - 11:30 AM Session 6: Query Processing and Indexing (I)

- **Efficient Bundled Spatial Range Queries**
Eleni Tzirita Zacharatou (Ecole Polytechnique Federale de Lausanne), Darius Sidlauskas (Ecole Polytechnique Federale de Lausanne), Farhan Tauheed (Oracle Labs), Thomas Heinis (Imperial College London), Anastasia Ailamaki (Ecole Polytechnique Federale de Lausanne)

- **The Maximum Visibility Facility Selection Query in Spatial Databases**

Ishat E Rabban (BUET), Mohammed Eunos Ali (BUET), Muhammad Aamir Cheema (Monash University), Tanzima Hashem (BUET)

- **Probabilistic Maximum Range-Sum Queries on Spatial Database (*Best Paper Candidate*)**

Qiyu Liu (The Hong Kong University of Science and Technology), Xiang Lian (Kent State University), Lei Chen (The Hong Kong University of Science and Technology)

11:30 AM - 12:30 PM Session 7: Query Processing and Indexing (II)

- **An investigation of Grid-enabled Tree Indexes for Spatial Query Processing**
Jaewoo Shin (Purdue University), Ahmed Mahmood (Google), Walid Aref (Purdue University)
- **Local Similarity Search on Geolocated Time Series Using Hybrid Indexing**
Georgios Chatzigeorgakidis (University of Peloponnese), Dimitrios Skoutas (Information Management Systems Institute, Athena Research Center), Kostas Patroumpas (Information Management Systems Institute, Athena Research Center), Themis Palpanas (Paris Descartes University), Spiros Athanasiou (Information Management Systems Institute, Athena Research Center), Spiros Skiadopoulos (University of Peloponnese)
- **Temporal Geo-Social Personalized Search Queries Over Streaming Data (*Best Paper Candidate*)**
Abdulaziz Almaslukh (University of California, Riverside), Amr Magdy (University of California, Riverside)

12:30 PM - 2:00 PM Lunch

- **Sponsored Luncheon (for women only): "Women's Lunch", Sponsored by Apple Inc., Featuring Guest Speaker Donna Pitteri, Apple Maps Senior Manager**

2:00 PM - 3:20 PM Session 8: Systems

- **Large-scale 3D geospatial processing made possible**
Lucas Villa Real (IBM Research Brazil), Bruno Silva (IBM Research Brazil), Dikran Meliksetian (IBM Research), Kaique Maestrini Sacchi (USP)
- **A NUMA-aware Trajectory Store for Travel-Time Estimation**
Robert Waury (Aalborg University), Kristian Torp

(Aalborg University), Christian S. Jensen (Aalborg University)

- **Data Management and Analytics System for Online Flight Conformance Monitoring and Anomaly Detection**
Samet Ayhan (University of Maryland), Hanan Samet (University of Maryland)
- **Real-Time Applications Using High Resolution 3D Objects in High Definition Maps**
Andi Zang (Northwestern University), Shiyu Luo (Northwestern University), Xin Chen (Here Technologies), Goce Trajcevski (Iowa State University)

3:20 PM - 3:50 PM Break

3:50 PM - 4:50 PM Session 9: Computational Geometry

- **Practical Topologically Safe Rounding of Geographic Networks**
Thomas C. Van Dijk (Universitat Wurzburg), Andre Loffler (Universitat Wurzburg)
- **Retrieving alpha-Shapes and Schematic Polygonal Approximations for Sets of Points within Queried Temporal Ranges**
Annika Bonerath (University of Bonn), Benjamin Niedermann (University of Bonn), Jan-Henrik Haunert (University of Bonn)
- **A General Framework for Human-Machine Digitization of Geographic Regions from Remotely Sensed Imagery**
Chris Michael (US Naval Research Laboratory), Steven Dennis (US Naval Research Laboratory), Corey Maryan (US Naval Research Laboratory), Samuel Irving (US Naval Research Laboratory), Margaret Palmsten (US Naval Research Laboratory)

4:50 PM - 5:30 PM Session 10: Industrial Experiences

- **A Deep Learning Approach for Tweet Classification and Rescue Scheduling for Effective Disaster Management**
Md Yasin Kabir (Missouri University of Science and Technology), Sanjay Madria (Missouri University of Science and Technology)
- **Multi-Itinerary Optimization as Cloud Service (Best Paper Candidate)**
Alexandru Cristian (Microsoft), Luke Marshall (Microsoft), Mihai Negrea (Microsoft), Flavius Stoichescu (Microsoft), Peiwei Cao (Microsoft), Ishai Menache (Microsoft)

5:30 PM - 5:40 PM Break

5:40 PM - 6:30 PM Contest Session

6:30 PM - 7:00 PM Break

7:00 PM - 7:30 PM Drinks

7:30 PM - 11:00 PM Banquet

Friday, November 8, 2019

7:00 AM - 8:00 AM Breakfast and Registration

8:00 AM - 8:40 AM Session 11: Privacy

- **On Location Privacy in Fingerprinting-based Indoor Positioning System: An Encryption Approach**
Wenlu Wang (Auburn University), Zhitao Gong (Auburn University), Ji Zhang (Auburn University), Hua Lu (Auburn University), Wei-Shinn Ku (Auburn University)
- **A Privacy-Preserving, Accountable and Spam-Resilient Geo-Marketplace**
Kien Duy Nguyen (University of Southern California), Gabriel Ghinita (University of Massachusetts, Boston), Muhammad Naveed (University of Southern California), Cyrus Shahabi (University of Southern California)

8:40 AM - 10:00 AM Session 12: Machine Learning

- **Learning Embeddings of Intersections on Road Networks**
Mengxiang Wang (Northeastern University), Wang-Chien Lee (The Pennsylvania State University), Tao-Yang Fu (The Pennsylvania State University), Ge Yu (Northeastern University)
- **Collective Representation Learning on Spatiotemporal Heterogeneous Information Networks**
Dakshak Keerthi Chandra (Missouri university of Science & Technology), Pengyang Wang (Missouri university of Science & Technology), Jennifer Leopold (Missouri university of Science & Technology), Yanjie Fu (Missouri university of Science & Technology)
- **TITAN: A Spatiotemporal Feature Learning Framework for Traffic Incident Duration Prediction**
Kaiqun Fu (Virginia Tech), Taoran Ji (Virginia Tech), Liang Zhao (George Mason University), Chang-Tien Lu (Virginia Tech)

- **SpatialNLI: A Spatial Domain Natural Language Interface to Databases Using Spatial Comprehension**

Jingjing Li (Auburn University), Wenlu Wang (Auburn University), Wei-Shinn Ku (Auburn University), Yingtao Tian (Stony Brook University), Haixun Wang (WeWork Research)

10:00 AM - 10:30 AM Break

10:30 AM - 11:30 AM Session 13: Clustering and Anomaly Detection

- **The Kernel Spatial Scan Statistic**
Mingxuan Han (University of Utah), Michael Matheny (University of Utah), Jeff Phillips (University of Utah)
- **Detecting Spatial Clusters of Disease Infection Risk Using Sparsely Sampled Social Media Mobility Patterns**
Roberto Souza (UFMG), Renato Assuncao (UFMG), Daniel Neill (New York University), Wagner Meira Jr. (Universidade Federal de Minas Gerais)
- **Spatiotemporal Bus Route Profiling using Odometer Data**
Xiqi Fei (George Mason University), Olga Gkountouna (George Mason University), Dieter Pfoser (George Mason University), Andreas Zuefle (George Mason University)

11:30 AM - 12:30 AM Session 14: Transportation

- **Efficient Calculation of Microscopic Travel Demand Data with Low Calibration Effort**
Valentin Buchhold (Karlsruhe Institute of Technology), Peter Sanders (Karlsruhe Institute of Technology), Dorothea Wagner (Karlsruhe Institute of Technology)
- **An Efficient Electric Vehicle Path-Planner That Considers the Waiting Time**
Jael Champagne Gareau (Universite du Quebec a Montreal), Eric Beaudry (Universite du Quebec a Montreal), Vladimir Makarenkov (Universite du Quebec a Montreal)
- **Social-Aware Optimal Electric Vehicle Charger Deployment on Road Network**
Qiyu Liu (The Hong Kong University of Science and Technology), Yuxiang Zeng (The Hong Kong University of Science and Technology), Lei Chen (The Hong Kong University of Science and Technology), Xiuwen Zheng (University of California San Diego)

12:30 PM - 1:00 PM Closing

Workshop Programs

November 5, 2019

8:00 AM – 9:00 AM Breakfast

Computational Transportation Science (IWCTS)

9:00 AM - 10:30 AM Session 1

- **Relative Reachability Analysis as a Tool for Urban Mobility Planning (Position Paper)**
Theodoros Chondrogiannis, Mario A. Nascimento and Panagiotis Bouros
- **Road Map Generation and Feature Extraction from GPS Trajectories Data**
Tariq Alsahfi, Mousa Almotairi, Ramez Elmasri and Bader Alshemaimri
- **Online Stochastic Prediction of Mid-Flight Aircraft Trajectories**
Yongzhen Arthur Pan, Mario A. Nascimento and Joerg Sander

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 12:00 PM Keynote

12:00 PM – 1:00 PM Lunch Break

1:30 PM – 3:30 PM Session 2

- **Small Traffic Sign Detection Through Selective Feature Fusion Based Faster R-CNN With Arc-Softmax Loss**
Site Li, Yang Gu, Zhichao Song, Tengfei Xing, Yiping Meng, Pengfei Xu, Runbo Hu, Tiancheng Zhang, Ge Yu and Hua Chai
- **Quantifying the Impact of Autonomous Vehicles using Microscopic Simulations**
Hairuo Xie, Egemen Tanin, Shanika Karunasekera, Jianzhong Qi, Rui Zhang, Lars Kulik and Kotagiri Ramamohanarao
- **Alternative Routes for Next Generation Traffic Shaping**
Florian Barth and Stefan Funke
- **Map matching when the map is wrong: Efficient on/off road vehicle tracking and map learning**

James Murphy, Yuanyuan Pao and Albert Yuen

- **Convoy Detection using Sequence Alignment**
Kai Li and Mark McKenney

3:30 PM – 4:00 PM Coffee Break

4:00 PM – 5:00 PM Session 3

- **Destination Signs in OpenStreetMap – Quality Assessment and Instrumentation for Routing**
Jan Rapp, Florian Barth and Stefan Funke
- **Shortest-Path Diversification through Network Penalization: A Washington DC area case study**
Dan Cheng, Olga Gkountouna, Andreas Züfle, Dieter Pfoser and Carola Wenk

5:00 PM – 5:10 PM Closing Remarks

Geospatial Data Access and Processing APIs (SpatialAPI)

9:00 AM - 9:15 AM Opening Remarks: Foreword

9:15 AM – 9:45 AM Plenary Session: Lightning talks

9:45 AM – 10:30 AM Session 1: Tutorial 1 & Tutorial 2 (Instruction)

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 11:45 AM Session 2: Tutorial 1 & Tutorial 2 (Development)

11:45 AM - 1:15 PM Lunch (on your own)

1:15 PM - 2:00 PM Session 3: Tutorial 3 (Instruction)

2:00 PM - 2:45 PM Session 4: Tutorial 3 (Development) & Tutorial 4 (Instruction)

2:45 PM - 3:30 PM Session 5: Tutorial 4 (Development) & Tutorial 5 (Instruction)

3:30 PM - 4:00 PM Coffee Break

4:00 PM - 4:45 PM Session 6: Tutorial 5 (Development) & Integration

4:45 PM - 5:00 PM Closing remarks

Tutorials

- 1. GIS++: Modern C++ for Efficient and Parallel In-Memory Spatial Computing**
Martin Werner (Institute for Applied Computer Science, Bundeswehr University)
- 2. Interactive 3D Web Mapping with HERE Technologies**
Craig Barnes (HERE Technologies)
- 3. Spatial Data Wrangling with GeoSpark - A Step by Step Tutorial**
Jia Yu (Arizona State University)
Mohamed Sarwat (Arizona State University)
- 4. Tutorial on Distributed Trajectory Management in Secondo**
Fabio Valdés (Database Systems for New Applications, Fernuniversität Hagen)
Thomas Behr (Database Systems for New Applications, Fernuniversität Hagen)
Ralf Hartmut Güting (Database Systems for New Applications, Fernuniversität Hagen)
- 5. Rasdaman: Open Standards Based Scalable Datacube Analytics**
Vlad Merticariu (Large Scale Scientific Information Systems Research Group, Jacobs University)
Peter Baumann (Large Scale Scientific Information Systems Research Group, Jacobs University)

GIS in Emergency Management (EM-GIS)

9:00 AM - 10:20 AM Session 1

- **Invited Talk: Spatio-Temporal Characteristics and Causes Analysis of Precipitation Anomalies During Flood Season in Central China**
Prof. Kun QIN
- **Information System and Management for Campus Safety**
Yiping Zeng, Hui Zhang, Xiaodong Liu, Yanyun Fu, Qing Deng and Rui Ye
- **Discentralized Human Movement Control and management for Campus Safety**
Xiaoxue Ma, Hui Zhang, Yanyun Fu, Yiping Zeng, Danhuai Guo and Yang Gao
- **Spatial and Temporal Distribution of LPG Dispersion Concentration in Small-scale Space**
Yang Gao, Hui Zhang, Lei Xiao, Yanyun Fu and Xiaoxue Ma

10:20 AM - 10:40 AM Coffee Break

10:40 AM - 12:20 PM Session 2

- **Experimental Investigation into the Acoustic Characteristics of the ground surface response due to Leakage in Buried Water-Filled Pipelines**
Shuan Yan, Hongyong Yuan, Yan Gao, Lizheng Deng, Boao Jin and Yifan Ma
- **Bridge Improvement Cost Estimation through Both Discrete and Continuous Features**
Zhaojun Lin, Yanyun Fu, Xinzhi Wang, Yiping Zeng and Hui Zhang
- **Using Social Media to Geo-Target Emergency Management Efforts**
Bandana Kar, Tzee Kiu Chow, Nathaniel Dede-Bamfo and Xiaohui Liu
- **Emergency Broadcasting Message Transmission Based on CDR System**
Xin Yu, Guofang Sheng and Xunchun Li
- **Risk Prediction and Assessment of Foodborne Disease Based on Big Data**
Mingke Zhang, Danhuai Guo and Jinyong Hu

12:20 PM - 1:30 PM Lunch

1:30 PM - 3:30 PM Session 3

- **AI Planning Applied to GIS-based Disaster Response**
Charles Petrie and Agnès Voisard
- **From Raw Sensor Data to Semantic Trajectories**
Frédéric Bisone, Thomas Devogele and Laurent Etienne
- **Path Optimization of Integrating Crowd Model and Reinforcement Learning**
Yanyun Fu, Wenxi Shi, Hui Zhang, Xiaoxue Ma, Yang Gao and Danhuai Guo
- **Personality Effect on Driving Behavior**
Lin Zhang, Qi Wang, Han Xing, Ellen Li, Yongqiang Chen and Yi Liu
- **Unlicensed Taxi Detection Algorithm Based on Traffic Surveillance Data**
Yao Tian, Jiaming Yang and Pengkai Lu
- **Study on Comfortable Distance based Car-following model with Trajectory Data**
Han Xing, Shuyi Wang, Zifan Yang, Yao Ren, Nan Jia and Yi Liu

3:30 PM - 3:50 PM Coffee Break

3:50 PM - 5:10 PM Session 4

- **Strategy of hybrid optimization algorithms for source parameters estimation of hazardous gas in field cases**
Yiduo Wang, Bin Chen, Zhengqiu Zhu and Chuan Ai

- **A Promising Searching Method 'Entrotaxis-Jump' for Seeking Hazardous Gas Source in a Chemical Cluster**
Yong Zhao, Bin Chen, Zhengqiu Zhu, Rongxiao Wang, Hailiang Chen and Xiaogang Qiu
- **Determination of the Number and Distribution of Charging Stations for Electric Vehicles**
Mengna Zhu, Bin Chen, Yatai Ji and Jie Zhang
- **Chemical Cluster Environmental Protection Patrolling Game Based on Cooperation Mechanism**
Feiran Chen, Bin Chen, Steven Zhu and Chuan Ai

5:10 PM - 5:20 PM Best Paper Voting

5:20 PM - 5:40 PM Closing Remarks

Geo-computational Thinking in Education (GeoEd)

9:00 AM - 9:10 AM Welcome

9:10 AM - 10:40 AM Session 1

- **Introduction to RPPs in GeoComputation**
Amr Magdy and Coline Dony
- **Keynote Talk: Spatial Computing Education: A Perspective**
Shashi Shekhar (University of Minnesota)
- **Geo-Computational Thinking in the Third Grade**
Thomas C. Hammond, Julie Oltman (Lehigh University) and Meghan Manfra (NC State University)

10:40 AM - 11:00 AM Coffee Break

11:00 AM - 12:00 PM Session 2

- **Some Observations Regarding Geocomputational Teaching through Interdisciplinary Teams**
Denis J. Dean (University of Texas at Dallas)
- **Observations on the Gaps and Opportunities for Geocomputation**
Diana Sinton (University Consortium for Geographic Information Science and Cornell University)

12:00 PM - 1:30 PM Lunch

1:30 PM - 3:30 PM Session 3

- **On the Epistemological Aspects of Geo-Computational Thinking and Curriculum Design**
Ningchuan Xiao (Ohio State University)
- **Panel Discussion: Identifying Research Opportunities for Geo-computational Education**
Ningchuan Xiao (Ohio State University), Joon Heo (Yonsei University, South Korea), Erik Hoel (ESRI), Avipsa Roy (Arizona State University)

3:30 PM - 4:00 PM Coffee Break

4:00 PM - 5:30 PM Session 4

- **Geocomputation with open-source software under Linux: Hands-on training for computational thinking and skills**
Giuseppe Amatulli (Yale University) and Tushar Sethi (Spatial Ecology)
- **Open, Guided Discussion**

Location-based Recommendations, Geosocial Networks and Geoadvertising (LocalRec)

9:00 AM - 9:10 AM Opening Remarks

9:10 - 10:40 Session 1: Spatial Analytics

- **Classifying Points of Interest with Minimum Metadata**
Giorgos Giannopoulos, Athena Research Center, Greece
Konstantinos Alexis, Athena Research Center, Greece
Nikos Kostagiolas, Athena Research Center, Greece
Dimitrios Skoutas, Athena Research Center, Greece
- **A Road Generalization Method using Layered Stroke Networks**
Yonghwan Kim, Nagoya Institute of Technology, Japan
Hiroaki Fukuyasu, Nagoya Institute of Technology, Japan
Daisuke Yamamoto, Nagoya Institute of Technology, Japan
Naohisa Takahashi, Nagoya Institute of Technology, Japan
- **Keynote 1 - Spatial Analytics for storing and analyzing GeoSocial data for Geoadvertising**
Siva Ravada, Oracle Corporation, USA

10:40 AM - 11:00 AM Coffee Break

11:00 AM - 12:30 PM Session 2:

Recommendations

- **Intelligent sightseeing in immensely manifold cities: case of 2018 FIFA World Cup host cities**
Ksenia Mukhina, ITMO University, Russia
Alexander Visheratin, ITMO University, Russia
Denis Nasonov, ITMO University, Russia
Lev Manovich, University of Tyumen, Russia
- **Inferring Ratings for Custom Trips from Rich GPS Traces**
Theodoros Chondrogiannis, University of Konstanz, Germany
Mouzhi Ge, Masaryk University, Czech Republic
- **Emotion Predictions in Geo-Textual Data using Spatial Statistics and Recommendation Systems**
Aisha Sikder, George Mason University, VA, USA
Andreas Züfle, George Mason University, VA, USA
- **Defining and Measuring Fairness in Location Recommendations**
Leonard Weydemann, Travel Data Solution, Austria;
Dimitris Sacharidis, Technische Universität Wien, Austria;
Hannes Werthner, Technische Universität Wien, Austria

12:30 PM – 2:00 PM Lunch Break

2:00 PM – 3:30 PM Session 3: Privacy

- **Mobile Recommendation Challenges within a Strong Privacy Oriented Paradigm**
Denys Proux, Naver Labs Europe, France
Frederic Roulland, Naver Labs Europe, France
- **Catch Me If You Can: How Geo-Indistinguishability Affects Utility In Mobility-Based Geographic Datasets**
Adriano Di Luzio, Sapienza University of Rome, Italy
Aline Carneiro Viana, INRIA, France
Konstantinos Chatzikokolakis, University of Athens, Greece
Georgi Dikov INRIA, France
Catuscia Palamidessi LIX, Ecole Polytechnique, France
Julinda Stefa, Sapienza University of Rome, Italy
- **Bokeh: Obfuscating Physical Infrastructure Maps**
Yugali Gullapalli, University of Wisconsin-Madison, WI, USA
Jeremy Koritzinsky, University of Wisconsin-Madison, WI, USA
Meenakshi Syamkumar, University of Wisconsin-Madison, WI, USA
Paul Barford, University of Wisconsin-Madison, WI, USA
Ramakrishnan Durairajan, University of Oregon, OR, USA
Joel Sommers, Colgate University, NY, USA

3:30 PM – 4:00 PM Coffee Break

4:00 PM – 5:30 PM Session 4: Geoadvertising and Location-Based Services

- **Keynote 2 - Geo-marketing and Situated Consumers: Opportunities and Challenges**
Syagnik Banerjee, University of Michigan-Flint, MI, USA
 - **Uplift modeling for location-based online advertising**
Shogo Kawanaka, Nara Institute of Science and Technology, Japan
Daisuke Moriwaki, CyberAgent Inc, Japan
 - **SeMap: Automatic Semantic Mapping for Large-Scale Indoor Spaces**
Xiaoqiang Teng, DiDi Chuxing, China
Deke Guo, National University of Defense Technology, China
Yulan Guo, National University of Defense Technology, China
Pengfei Xu, DiDi Chuxing, China
Yiping Meng, DiDi Chuxing, China
Runbo Hu, DiDi Chuxing, China
Hua Chai, DiDi Chuxing, China
Zhong Liu, National University of Defense Technology, China
 - **A Location-based Social Network System Integrating Mobile Augmented Reality and User Generated Content**
Yuanwen Yue, Wuhan University, China
Jiaqi Ding, Wuhan University, China
Yuhao Kang, University of Wisconsin-Madison, WI, USA
Yueyao Wang, Peking University, China
Kunlin Wu, Wuhan University, China
Teng Fei, Wuhan University, China
- ## 5:30 PM – 5:40 PM Closing Remarks

Prediction of Human Mobility (PredictGIS)

9:00 AM - 9:05 AM Opening Remarks

9:05 AM - 10:30 AM Session 1

- **Keynote 1**
- **Predicting Traffic Accidents with Event Recorder Data (short paper)**
Yoshiaki Takimoto, NTT; Yusuke Tanaka, NTT;
Takeshi Kurashima, NTT; Shuhei Yamamoto, NTT;
Maya Okawa, NTT; Hiroyuki Toda, NTT

- **Graph Analyses of Phone-Based Origin-Destination Data for Understanding Urban Human Mobility in Seoul, Korea (short paper)**
Hyoungjoon Lim, Yonsei University; Soohyun Kim, Yonsei University; Joon Heo, Yonsei University

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 12:00 PM Session 2

- **A Novel Approach to Approximate Crime Hotspots to the Road Network**
Federal do Ceara; Ticiano L. Coelho da Silva, Federal University of Ceara; Jose Florencio de Queiroz Neto, Universidade Federal do Ceara; Jose Macedo, Insight Data Science Lab; Wellington Silva, Universidade Federal do Rio Grande do Norte
- **Enhancing a Crowd-based Delivery Network with Mobility Predictions**
Christian Schreckenberger, University of Mannheim; Christian Bartelt, University of Mannheim; Heiner Stuckenschmidt, University of Mannheim
- **Predicting Traveler Next Choice of Activity with Location-Based Social Network Data**
To Diem, University of Washington; Dong Si, University of Washington; Ying Chen, Northwestern University

12:00 PM - 1:30 PM Lunch (not provided)

1:30 PM - 3:30 PM Session 3

- **Keynote 2**
- **Bike-Share Demand Prediction using Attention based Sequence to Sequence and Conditional Variational AutoEncoder (Short paper)**
Tomohiro Mimura, NTT DOCOMO; Shin Ishiguro, NTT DOCOMO; Satoshi Kawasaki, NTT DOCOMO; Yusuke Fukazawa, NTT DOCOMO
- **Spatio-Temporal Clustering of Traffic Data with Deep Embedded Clustering**
Reza Asadi, University of California, Irvine; Amelia Regan, University of California, Irvine
- **Context-based Markov Model toward Spatio-Temporal Prediction with Realistic Dataset**
Kota Tsubouchi, Yahoo Japan Corporation; Tomoki Saito, Yahoo Japan Corporation; Masamichi Shimosaka, Tokyo Institute of Technology

3:30 PM - 4:00 PM Coffee Break

4:00 PM - 4:40 PM Session 4

- **Using Mobile Sensing Technology for Capturing People Mobility Information**
Chenwei Song, The University of Tokyo; Masaki Ito, The University of Tokyo; Yuuki Nishiyama, The

University of Tokyo; Kaoru Sezaki, The University of Tokyo

- **Grab-Posisi: An Extensive Real-Life GPS Trajectory Dataset in Southeast Asia**
Xiaocheng Huang, Grabtaxi Holdings; Yifang Yin, National University of Singapore; Simon Lim, Grabtaxi Holdings; Guanfeng Wang, Grabtaxi Research and Development Centre; Bo Hu, Grabtaxi Holdings; Jagannadan Varadarajan, Grabtaxi Holdings; Shaolin Zheng, Grabtaxi Holdings; Roger Zimmermann, National University of Singapore

4:40 PM - 4:50 PM Closing Remarks

Analytics for Local Events and News (LENS)

9:00 AM - 9:15 AM Opening Remarks

9:15 AM - 10:30 AM Session 1

- **Keynote Talk 1: Local Dimensions: Towards Platial data analytics**
Grant McKenzie, McGill University
- **DeLLe: Detecting Latest Local Events from Geotagged Tweets**
Hong Wei, Hao Zhou, Jagan Sankaranarayanan, Sudipta Sengupta, Hanan Samet

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 11:50 AM Session 2

- **DeepSpot: Understanding Online Opinion Spam by Text Augmentation using Sentiment Encoder-Decoder Networks**
Avik Nayak, Haiquan Chen, Xiaojun Ruan, Jinsong Ouyang
- **Detecting (Unusual) Events in Urban Areas using Bike-Sharing Data**
Alex Lam, Matthew Schofield, Shen-Shyang Ho

11:50 AM - 2:00 PM Lunch

2:00 PM - 3:35 PM Session 3

- **Keynote Talk 2: Multiscale event detection and forecasting in complex urban environments**
Alexander Visheratin, ITMO University
- **Scalable Community Detection over Geo-Social Network**
Xiuwen Zheng, Qiyu Liu, Amarnath Gupta

- **A Blockchain-based Solution to Fake Check-ins in Location-Based Social Networks**

Sara Migliorini, Mauro Gambini, Alberto Belussi

3:35 PM - 4:05 PM Coffee Break

4:05 PM - 4:15 PM Closing Remarks

Advances in Resilient and Intelligent Cities (ARIC)

9:00 AM - 9:15 AM Opening Remarks

9:15 AM - 10:40 AM Session 1

- **Array of Things: A Fitbit for a City**
Dr. Raj Sankaran
- **Vision for a Holistic Smart City (HSC)- Integrating Resiliency Framework via Crowdsourced Community Resiliency Information System (CRIS)**
Barnali Dixon
- **Using Digital Trace Data to Identify Regions and Cities**
Christa Brelsford

10:40 AM - 11:00 AM Coffee Break

11:00 AM - 12:10 PM Session 1

- **Topic Modelling to Contextualize Event-based Datasets: The Columbian Piece Process**
Ashlynn Daughton
- **Mobility Pattern Analysis for Power Restoration Activities Using Geo-Tagged Tweets**
Bandana Kar
- **In-Database Geospatial Analytics Using Python**
Avipsa Roy

12:10 PM – 2:00 PM Lunch Break

2:00 PM – 3:25 PM Session 2

- **Keynote Talk**
- **ADMSv2: A Modern Architecture for Transportation Data Management and Analysis**
Chrysovalantis Anastasiou
- **Structuralizing Disaster-scene Data through Auto-captioning**
Alina Klerings

3:25 PM – 4:00 PM Coffee Break

4:00 PM – 5:10 PM Session 2

- **Towards an Integrated and Realtime Wayfinding Framework for Flood Events**
Jerry Mount
- **Flood Depth Estimation from Web Images**
Zongling Meng
- **Semantics-enabled Spatio-Temporal Modeling of Earth Observation Data: An application to**

Flood Monitoring

Kuldeep Kurte

5:10 PM – 5:30 PM Closing Remarks

Geospatial Humanities

9:00 AM - 9:15 AM Opening Remarks and Announcements

9:15 AM - 10:30 AM Session 1

- **Preah Vihear Project: Obtaining 3D point-cloud data and its application to spatial distribution analysis of Khmer temples**
Mawo Kamakura, Hikaru Ikuta, Bo Zheng, Yoshihiro Sato, Masataka Kagesawa, Takeshi Oishi, Kaoru Sezaki, Takeshi Nakagawa and Katsushi Ikeuchi
- **High-Resolution Population Grid in the CONUS Using Microsoft Building Footprints: A Feasibility Study**
Xiao Huang, Cuizhen Wang and Zhenlong Li
- **SONET: A Semantic Ontological Network Graph for Managing Points of Interest Data Heterogeneity**
Rachel Palumbo, Laura Thompson and Gautam Thakur

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 12:15 PM Session 2

- **The Built Environment and Syrian Refugee Integration in Turkey: An Analysis of Mobile Phone Data**
Clio Andris, Brynne Godfrey, Carleen Maitland and Matthew McGee
- **Toponym disambiguation in historical documents using network analysis of qualitative relationships**
Ludovic Moncla, Katherine McDonough, Denis Vigier, Thierry Joliveau and Alice Brenon
- **Are We There Yet? Evaluating State-of-the-Art Deep Learning Geoparsers Using EUPEG as a Benchmarking Platform**
Jimin Wang and Yingjie Hu

12:15 PM – 12:30 PM Closing Remarks

GeoSpatial Simulation (GeoSim)

2:00 PM - 2:15 PM Opening Remarks

2:15 PM - 3:30 PM: Session 1

- **SimCT: Spatial Simulation of Urban Evolution to Test Resilience of 5G Cellular Networks**
Teyu Hsiung (AT&T Labs-Research), Yaron Kanza (AT&T Labs-Research)
- **Simulating and Modeling the Signal Attenuation of Wireless Local Area Network for Indoor Positioning**
Terence Lines (University College London), Anahid Basiri (University College London)
- **Spatiotemporal Simulation: Local Ripley's K Function Parameterizes Adaptive Kernel Density Estimation**
Alexander Hohl (The University of Utah), Peilin Chen (Intermountain Healthcare)

3:30 PM - 4:00 PM Coffee Break

4:00 PM - 5:55 PM Session 2

- **Invited Talk: Geospatial Simulation, Three Ways**
Sarah Wise, University College London
- **Firm-level Behavior Control after Large-scale Urban Flooding Using Multi-agent Deep Reinforcement Learning**
Shaofeng Yang (The University of Tokyo), Yoshiki Ogawa (The University of Tokyo), Koji Ikeuchi (The University of Tokyo), Yuki Akiyama (The University of Tokyo), Ryosuke Shibasaki (The University of Tokyo)
- **Integrating CyberGIS-Jupyter and Spatial Agent-Based Modelling to Evaluate Emergency Evacuation Time**
Rebecca Vandewalle (University of Illinois at Urbana-Champaign), Jeon-Young Kang (University of Illinois at Urbana-Champaign), Dandong Yin (University of Illinois at Urbana-Champaign), Shaowen Wang (University of Illinois at Urbana-Champaign)
- **CyberGIS-Jupyter for Spatially Explicit Agent-Based Modeling: A Case Study on Influenza Transmission**
Jeon-Young Kang (University of Illinois at Urbana-Champaign), Jared Aldstadt (University at Buffalo, The State University of New York), Alexander Michels (University of Illinois at Urbana-Champaign), Rebecca Vandewalle (University of Illinois at Urbana-Champaign), Shaowen Wang (University of Illinois at Urbana-Champaign)

- **ES-Band: A Novel Approach to Coordinate Green Wave System with Adaptation Evolutionary Strategies**
Zheng Ye (Shenzhen University), Zhao Zhigang (Shenzhen University), Ma Ding (Shenzhen University), Jin Fengying (Wuhan University)

5:55 PM - 6:00 PM Closing Remarks

Spatial Gems (SpatialGems)

9:00 AM - 9:10 AM Welcome and Introduction

9:10 AM - 10:20 AM Paper Presentations

- **Heat Map Segmentation**
Gil Wolff, Amazon
- **Online Location Trajectory Compression**
ABM Musa, Amazon; James Biagioni, Carmera; Jakob Eriksson, University of Illinois at Chicago
- **Spatial Data Generators**
Tin Vu, University of California, Riverside; Sara Migliorini, University of Verona; Ahmed Eldawy, University of California, Riverside; Alberto Belussi, University of Verona
- **Complete and Sufficient Spatial Domination of Multidimensional Rectangles**
Tobias Emrich, Harman International; Hans-Peter Kriegel, Ludwig Maximilian University of Munich; Andreas Zufle, George Mason University; Peer Kroger, Ludwig Maximilian University of Munich; Matthias Renz, Christian-Albrechts-Universität at Kiel
- **Minimal Representations of Polygons and Polyhedra**
W. Randolph Franklin, Rensselaer Polytechnic Institute
- **Simplification of Indoor Space Footprints**
Joon-Seok Kim, George Mason University; Carola Wenk, Tulane University
- **Speed Distribution from Normally Distributed Location Measurements**
John Krumm, Microsoft Research

10:20 AM – 10:30 AM Instructions for commenting and assignment of group pairs

10:30 AM - 11:00 AM Coffee Break

11:00 AM- 12:30 PM A/B Editing Session

- Assemble into A/B teams, read other person's paper, note comments

- Give/take comments for paper A
- Give/take comments for paper B
- Edit your paper based on comments

12:30 PM – 2:00 PM Lunch (on your own)

2:00 PM – 3:30 PM C/D Editing Session

- Assemble into C/D teams, read other person's paper, note comments
- Give/take comments for paper C
- Give/take comments for paper D
- Edit your paper based on comments

3:30 PM – 4:00 PM Coffee Break

4:00 PM – 5:30 PM E/F Editing Session (optional)

- Assemble into E/F teams, read other person's paper, note comments
- Give/take comments for paper E
- Give/take comments for paper F
- Edit your paper based on comments

Computing with Multifaceted Movement Data (MOVE++)

2:00 PM - 2:10 PM Opening Remarks

2:10 PM - 3:30 PM Session 1

- **Understanding Movement in Context with Heterogeneous Data**
Onur Derin, HERE Technologies; Aniket Mitra, HERE Technologies; Matei Stroila, HERE Technologies; Bram Custers, TU Eindhoven; Wouter Meulemans, TU Eindhoven; Marcel Roeloffzen, TU Eindhoven; Kevin Verbeek, TU Eindhoven
- **Shared Micro-Mobility Patterns as Measures of City Similarity**
Grant McKenzie, McGill University
- **Inferring Semantically Enriched Representative Trajectories**
Jana Seep, Westfälische Wilhelms-Universität Münster; Jan Vahrenhold, Westfälische Wilhelms-Universität Münster
- **Latent Terrain Representations for Trajectory Prediction**
Andrew Feng, University of Southern California; Andrew S. Gordon, University of Southern California

3:30 PM - 4:00 PM Coffee Break

4:00 PM - 5:15 PM Session 2

- **A Repository of Network-Constrained Trajectory Data**
Stefan Funke, University of Stuttgart; Sabine Storandt, University of Konstanz
- **Invited Speaker: Location Graphs for Movement Data Modeling, Analytics, and Visualization**
Craig Barnes, HERE Technologies

5:15 PM - 5:45 PM Open discussion in small groups

5:45 PM - 5:50 PM Closing Remarks

Analytics for Big Geospatial Data (BigSpatial)

9:00 AM - 9:15 AM Opening Remarks

9:15 AM - 10:30 AM Session 1

- **Keynote Talk**
Dr. Dalton D. Lunga, Oak Ridge National Laboratory
- **Distributed Moving Object Data Management in MobilityDB**
Mohamed Bakli, Mahmoud Sakr, Esteban Zimanyi

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 12:15 PM Session 2

- **geoEdge: A Real-time Analytics Framework for Geospatial Applications**
Ranga Raju Vatsavai, Bharathkumar Ramachandra, Zexi Chen, John Jernigan
- **Efficient MapReduce Computation of Topological Relations for Big Geometries**
Alberto Belussi, Damiano Carra, Sara Migliorini, Mauro Negri
- **Fast Proximity Graph Generation with Spark**
Arjun Subramanyam Varalakshmi, Chong WANG, Christoph F. Eick

12:15 PM – 12:30 PM Closing Remarks

Ride-hailing Algorithms, Applications, and Systems (RAAS)

1:30 PM - 1:45 PM: Opening Remarks : Cyrus Shahabi

1:45 PM - 3:30 PM Session 1 Keynotes

- **Keynote Talk:**
Xin Chen, Director of Engineering in the Highly Automated Driving organization, HERE Technologies
- **Keynote Talk:**
Laitu Yang, Vice General Manager of Cennavi, a professional big data company of NavInfo Group and a leading provider of traffic information services in China
- **Keynote Talk:**
Hua Chai, General Manager of DiDi Maps

3:30 PM - 4:00 PM Coffee Break & Poster Presentations

- **Road Status Prediction Based on Large-scale Attention Diffusion Convolution**
Jiayan Zhu, Didi Chuxing; Jingcheng Ni, Didi Chuxing; Jun Fang, Didi Chuxing; Cheng Li, Peking University; Naiqiang Tan, Didi Chuxing; Hua Chai, Didi Chuxing
- **Accurate Road Anomaly Detection by Trajectory Mining**
Kaiqiang An, Didi Chuxing; Guoping Liu, Didi Chuxing; Rongxiang Su, UC Santa Barbara; Jiachen Feng, Didi Chuxing; Nan Ma, Didi Chuxing; Daxin Zheng, Didi Chuxing; Xiang Wen, Didi Chuxing; Runbo Hu, Didi Chuxing; Hua Chai, Didi Chuxing
- **Analyzing the Gap Between Ride-hailing Location and Pick-up Location with Geographical Contexts**
Yunlei Liang, University of Wisconsin-Madison; Song Gao, University of Wisconsin-Madison; Mingxiao Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Yuhao Kang, University of Wisconsin-Madison; Jinmeng Rao, University of Wisconsin-Madison
- **Exploring Personalization in the Application of Intelligent Transportation Systems**
Yang Liu, Southeast University; Cheng Lyu, Southeast University; Qixiu Cheng, Southeast University; Zhiyuan Liu, Southeast University
- **Physics-Based Velocity Calculations for Trip Planning with Lightweight Motorized Personal Vehicles**
Evan Siroky, IBI Group
- **Smartphone-based Vehicle Speed Inference Without GPS**
Yao Tong, Beijing Jiaotong University; Ruipeng Gao, Beijing Jiaotong University; Shihua Zhao, Didi Chuxing; Chi Li, Didi Chuxing; Weihuan Shu, Didi Chuxing; Nan Ma, Didi Chuxing

4:00 PM – 5:00 PM Session 2 Oral Presentations

- **Smartphone-based Vehicle Speed Inference Without GPS**
Yao Tong, Beijing Jiaotong University; Ruipeng Gao, Beijing Jiaotong University; Shihua Zhao, Didi Chuxing; Chi Li, Didi Chuxing; Weihuan Shu, Didi Chuxing; Nan Ma, Didi Chuxing
- **Exploring Personalization in the Application of Intelligent Transportation Systems**
Yang Liu, Southeast University; Cheng Lyu, Southeast University; Qixiu Cheng, Southeast University; Zhiyuan Liu, Southeast University
- **Road Status Prediction Based on Large-scale Attention Diffusion Convolution**
Jiayan Zhu, Didi Chuxing; Jingcheng Ni, Didi Chuxing; Jun Fang, Didi Chuxing; Cheng Li, Peking University; Naiqiang Tan, Didi Chuxing; Hua Chai, Didi Chuxing

5:00 PM – 5:30 PM Session 3 Closing

- **Discussion & Awarding Ceremony**
- **Closing Remarks: Tiger Qie**

AI for Geographic Knowledge Discovery (GeoAI)

9:00 AM - 9:05 AM Welcome and announcements

9:10 AM - 10:30 AM Session 1

- **Keynote: HD Live Map for Automated Driving: An AI Approach**
Dr. Xin Chen from HERE Technologies
- **An Unsupervised Approach to Geographical Knowledge Discovery Using Street Level and Street Network Images**
Stephen Law University College London London, UK; Daniel Mateo Neira Alvarez University College London London, UK
- **A Deep Learning Based Illegal Parking Detection Platform**
Zhengcong Yin Texas A&M University; Haoyi Xiong University of Iowa; Xun Zhou University of Iowa; Daniel Goldberg Texas A&M University; Dave Bennett University of Iowa; Chong Zhang Environmental Systems Research Institute, Inc

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 12:20 PM Session 2

- **ChangeNet: Learning to Detect Changes in Satellite Images**
Ying Chen Illinois Institute of Technology; Xu Ouyang Illinois Institute of Technology; Gady Agam Illinois Institute of Technology
- **Keras Spatial: Extending Deep Learning Frameworks for Preprocessing and On-The-Fly Augmentation of Geospatial data**
Aiman Soliman University of Illinois at Urbana-Champaign; Jeffrey Terstriep University of Illinois at Urbana-Champaign
- **Assessing the Placeness of Locations through User-contributed Content**
Xiaoyi Yuan George Mason University; Andrew Crooks George Mason University
- **Urban Flood Mapping with Residual Patch Similarity Learning**
Bo Peng University of Wisconsin – Madison; Xinyi Liu University of Wisconsin – Madison; Zonglin Meng University of Wisconsin – Madison; Qunying Huang University of Wisconsin – Madison

12:30 PM – 2:00 PM Lunch (on your own)

2:00 PM – 3:30 PM Session 3

- **Keynote:**
Professor Raju Vatsavai, North Carolina State University
- **A Machine Learning Approach to Estimate Median Income Levels of Sub-Districts in Thailand Using Satellite and Geospatial Data**
Ugyen Jigten Dorji NECTEC, Thailand; Anon Plangprasopchok NECTEC, Thailand; Navaporn Surasvadi NECTEC, Thailand; Chaiphaphum Siripanpornchana NECTEC, Thailand
- **A Traffic Sign Discovery Driven System for Traffic Rule Updating**
Tengfei Xing Didi Chuxing; Yang Gu Didi Chuxing; Zhichao Song Didi Chuxing; Zhihui Wang Didi Chuxing; Pengfei Xu Didi Chuxing; Runbo Hu Didi Chuxing; Hua Chai Didi Chuxing
- **City-level Geolocation of Tweets for Real-time Visual Analytics**
Luke Snyder Purdue University; Morteza Karimzadeh University of Colorado Boulder; Ray Chen Purdue University; David Ebert Purdue University
- **Estimating the Spatial Resolution of Very High-Resolution Overhead Imagery**
Haolin Liang University of California, Merced; Shawn Newsam University of California, Merced

3:30 PM – 4:00 PM Coffee Break

4:00 PM – 5:10 PM Session 4

- **Kartta Labs: Unrendering Historical Maps**
Sasan Tavakkol Google Research, New York, NY; Yao-Yi Chiang Google Research, New York, NY; Tim Waters Waters Geospatial, Leeds, UK; Feng Han Google Research, New York, NY; Kisalaya Prasad Google, New York, NY; Raimondas Kiveris Google Research, New York, NY
- **Land Use Inference from Mobility Traces**
John Krumm Microsoft Research, Redmond, WA; Kora Krumm Seattle Pacific University, Seattle, WA
- **Mapping Miscanthus Using Multi-Temporal Convolutional Neural Network and Google Earth Engine**
Yanan Xin The Pennsylvania State University, University Park, PA; Paul R. Adler United States Department of Agriculture, Agricultural Research Service (USDA-ARS) University Park, PA
- **Multi-scale Graph Convolutional Network for Intersection Detection from GPS Trajectories**
Yifang Yin National University of Singapore, Singapore; Abhinav Sunderrajan GrabTaxi Holdings, Singapore; Xiaocheng Huang GrabTaxi Holdings, Singapore; Jagannadan Varadarajan GrabTaxi Holdings, Singapore; Guanfeng Wang GrabTaxi Holdings, Singapore; Dhruva Sahrawat National University of Singapore, Singapore; Ying Zhang National University of Singapore, Singapore; Roger Zimmermann National University of Singapore, Singapore; See-Kiong Ng National University of Singapore, Singapore
- **STIETR: Spatial-temporal Intelligent E-Taxi Recommendation System Using GPS Trajectories**
Ke Mei Shenzhen University; Wei Tu Shenzhen University; Qingquan Li Shenzhen University; Haoyu Ye Wuhan University; Tianhong Zhao Shenzhen University; Yatao Zhang Wuhan University
- **Contextualizing Space and Time for GeoAI JITAs (Just-in-Time Adaptive Interventions)**
Jiue-An Yang UC San Diego, San Diego, CA; Marta Jankowska UC San Diego, San Diego, CA
- **Imitation Learning from Human-Generated Spatial-Temporal Data (Vision Paper)**
Yanhua Li Worcester Polytechnic Institute, USA; Weixiao Huang Worcester Polytechnic Institute, USA

5:10 PM Wrap up discussion – Future Direction and Collaboration Opportunities

- **Shortest-Path Diversification through Network Penalization: A Washington DC area case study**
Dan Cheng, Olga Gkountouna, Andreas Züfle, Dieter Pfoser and Carola Wenk

5:00 PM – 5:10 PM Closing Remarks

Poster, Demo and SRC Papers

Poster Papers

- **Streaming Route Assignment for Connected Autonomous Vehicles**
Sadegh Motallebi (The University of Melbourne), Hairuo Xie (The University of Melbourne), Egemen Tanin (The University of Melbourne), Jianzhong Qi (The University of Melbourne), Kotagiri Ramamohanarao (The University of Melbourne)
- **City2City: Translating Place Representations across Cities**
Takahiro Yabe (Purdue University), Kota Tsubouchi (Yahoo Japan Research), Toru Shimizu (Yahoo! Japan), Yoshihide Sekimoto (The University of Tokyo), Satish Ukkusuri (Purdue University)
- **GPS2Vec: Towards Generating Worldwide GPS Embeddings**
Yifang Yin (National University of Singapore), Zhenguang Liu (Zhejiang Gongshang University), Ying Zhang (National University of Singapore), Sheng Wang (Alibaba), Rajiv Shah (IIIT Delhi), Roger Zimmermann (National University of Singapore)
- **Towards Misregistration-Tolerant Change Detection using Deep Learning Techniques with Object-Based Image Analysis**
Tao Liu (Oak Ridge National Laboratory), Lexie Yang (Oak Ridge National Laboratory), Dalton Lunga (Oak Ridge National Laboratory)
- **Scaling Address Parsing Sequence Models through Active Learning**
Helen Craig (Microsoft), Dragomir Yankov (Microsoft), Renzhong Wang (Microsoft), Pavel Berkhin (Microsoft), Wei Wu (Microsoft)
- **Topological Generalization of Continuous Valued Raster Data**
Padraig Corcoran (Cardiff University)
- **Flight Delay Prediction using Airport Situational Awareness Map**
Wei Shao (RMIT University), Arian Prabowo (RMIT University), Sichen Zhao (RMIT University), Siyu Tan (Xi'an University of Technology), Piotr Koniusz (CSIRO), Flora D. Salim (RMIT University), Jeffrey Chan (RMIT University), Xinhong Hei (Xi'an University of Technology), Bradley Fees (Grumman Corporation)
- **Querying Continuous Recurrent Convoys of Interest**
Munkh-Erdene Yadamjav (RMIT University), Zhifeng Bao (RMIT University), Farhana Choudhury (The University of Melbourne), Hanan Samet (University

- of Maryland), Baihua Zheng (Singapore Management University)
- **Routines - A System for Inference, Analysis and Prediction of Users Daily Location Visits**
Michael R. Evans (Microsoft), Renzhong Wang (Microsoft), Dragomir Yankov (Microsoft), Senthil Palanisamy (Microsoft), Siddhartha Arora (Microsoft), Wei Wu (Microsoft)
- **DeepTrip: Adversarially Understanding Human Mobility for Trip Recommendation**
Qiang Gao (School of Information and Software Engineering, University of Electronic Science and Technology of China), Goce Trajcevski (Iowa State University), Fan Zhou (School of Information and Software Engineering, University of Electronic Science and Technology of China), Kunpeng Zhang (University of Maryland), Ting Zhong (School of Information and Software Engineering, University of Electronic Science and Technology of China), Fengli Zhang (School of Information and Software Engineering, University of Electronic Science and Technology of China)
- **Semantic-Enhanced Learning (SEL) on Artificial Neural Networks Using the Example of Semantic Location Prediction**
Antonios Karatzoglou (Robert Bosch GmbH), Michael Beigl (TecO, Pervasive Computing Systems, KIT)
- **DeepMM: Deep Learning Based Map Matching with Data Augmentation**
Kai Zhao (Tsinghua University), Jie Feng (Tsinghua University), Zhao Xu (Tsinghua University), Tong Xia (Tsinghua University), Yong Li (Tsinghua University), Depeng Jin (Tsinghua University)
- **Predicting Perceived Level of Cycling Safety for Cycling Trips**
Jiahui Wu (University of Maryland), Lingzi Hong (University of Maryland), Vanessa Frias-Martinez (University of Maryland)
- **Graph Convolutional Networks for Road Networks**
Tobias Skovgaard Jepsen (Aalborg University), Christian Sondergaard Jensen (Aalborg University), Thomas Dyhre Nielsen (Aalborg University)
- **Learning to Find Hydrological Corrections**
Lars Arge (Aarhus University), Allan Gronlund (Aarhus University), Jonas Tranberg (Aarhus University), Svend Christian Svendsen (Aarhus University)
- **Simple Distances for Trajectories via Landmarks**
Jeff Phillips (University of Utah), Pingfan Tang (University of Utah)
- **Which One is Correct, The Map or The GPS Trace**
Mohamed Ali (Center of Data Science, University of Washington, Tacoma), Abdeltawab Hendawi (University of Virginia), Ashley Song (Microsoft), Peiwei Cao (Microsoft), Zhihong Zhang (Microsoft), Sree Sindhu Sabbineni (Center of Data Science,

University of Washington, Tacoma), Jianwei Shen (Center of Data Science, University of Washington, Tacoma), John Krumm (Microsoft Research, Redmond, Microsoft Corporation)

- **Linear Hotspot Discovery on All Simple Paths: A Summary of Results**

Xun Tang (University of Minnesota), Jayant Gupta (University of Minnesota), Shashi Shekhar (University of Minnesota)

- **Conflict-Free Evacuation Route Planner: A Summary of Results**

Roxana Herschelman (Florida Atlantic University), Kwangsoo Yang (Florida Atlantic University)

- **Learning Embeddings of Spatial, Textual and Temporal Entities in Geotagged Tweets**

Hong Wei (University of Maryland), Janit Anjaria (University of Maryland), Hanan Samet (University of Maryland)

- **ST-Discovery : Data-Driven Discovery of Spatio-Temporal Dependencies in Urban Road Networks**

Nicolas Tempelmeier (L3S Research Center), Udo Feuerhake (Leibniz Universitat Hannover), Oskar Wage (Leibniz Universitat Hannover), Elena Demidova (L3S Research Center)

- **20 Years of Mobility Modeling & Prediction: Trends, Shortcomings & Perspectives**

Vaibhav Kulkarni (UNIL-HEC Lausanne), Benoit Garbinato (University of Lausanne)

- **klcluster: Center-based Clustering of Trajectories**

Kevin Buchin (Eindhoven University of Technology), Anne Driemel (University of Bonn), Natasja van de L'Isle (Eindhoven University of Technology), Andre Nusser (Max-Planck-Institut fur Informatik)

- **DeepSPACE: Approximate Geospatial Query Processing with Deep Learning**

Dimitri Vorona (Technical University of Munich), Andreas Kipf (Technical University of Munich), Thomas Neumann (Technical University of Munich), Alfons Kemper (Technical University of Munich)

- **Learning Domain Specific Models for Toponym Interlinking**

Vassilis Kaffes (University of Peloponnese), Giorgos Giannopoulos (IMSI Institute, "Athena" Research Center), Nikos Karagiannakis (IMSI Institute, "Athena" Research Center), Nontas Tsakonas (Eratosthenes S.A., Greece)

- **Breadcrumbs: A Rich Mobility Dataset with Point-of-Interest Annotations**

Arielle Moro (University of Neuchatel), Vaibhav Kulkarni (UNIL-HEC Lausanne), Pierre-Adrien Ghiringhelli (UNIL-HEC Lausanne), Bertil Chapuis (UNIL-HEC Lausanne), Benoit Garbinato (UNIL-HEC Lausanne), Kevin Huguenin (UNIL-HEC Lausanne)

- **Deep Multiple Instance Learning for Human Trajectory Identification**

Zipei Fan (The University of Tokyo), Xuan Song (The University of Tokyo), Quanjun Chen (The University

of Tokyo), Renhe Jiang (The University of Tokyo), Kota Tsubouchi (Yahoo! JAPAN Research), Ryosuke Shibasaki (The University of Tokyo)

- **Parallel In-Memory Evaluation of Spatial Joins**

Dimitrios Tsitsigkos (Institute for the Management of Information Systems, RC Athena), Panagiotis Bouras (Johannes Gutenberg University Mainz), Nikos Mamoulis (University of Ioannina), Manolis Terrovitis (Institute for the Management of Information Systems, RC Athena)

- **Road Network Reconstruction from satellite images with Machine Learning Supported by Topological Methods**

Tamal Dey (The Ohio State University), Jiayuan Wang (The Ohio State University), Yusu Wang (The Ohio State University)

- **Efficient Computation of Multi-Modal Public Transit Traffic Assignments using ULTRA**

Jonas Sauer (Karlsruhe Institute of Technology), Dorothea Wagner (Karlsruhe Institute of Technology), Tobias Zundorf (Karlsruhe Institute of Technology)

- **Parking Lot Instance Segmentation from Satellite Imagery through Associative Embeddings**

Tessa Berry (HERE Technologies), Nicholas Dronen (HERE Technologies), Brett Jackson (HERE Technologies), Ian Endres (HERE Technologies)

- **Push-based Spatial Crowdsourcing for Enriching Semantic Tags in OpenStreetMap**

Srinivasa Raghavendra Bhuvan Gummidi (Aalborg University), Esteban Zimanyi (Universite Libre de Bruxelles), Torben Bach Pedersen (Aalborg University), Xike Xie (University of Science and Technology of China)

- **A Data-Driven Approach to Understanding and Predicting the Spatiotemporal Availability of Street Parking**

Mingxiao Li (Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences), Song Gao (University of Wisconsin-Madison), Yunlei Liang (University of Wisconsin-Madison), Joseph Marks (GeoDS Lab, University of Wisconsin-Madison), Yuhao Kang (University of Wisconsin-Madison), Moyin Li (Pace Suburban Bus)

- **Deformable Part Models for Automatically Georeferencing Historical Map Images**

Nicholas Howe (Smith College), Jerod Weinman (Grinnell College), John Gouwar (Grinnell College), Aabid Shamji (Grinnell College)

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Subhodip Biswas (VIRGINIA POLYTECHNIC INSTITUTE), Fanglan Chen (VIRGINIA POLYTECHNIC INSTITUTE), Zhiqian Chen (VIRGINIA POLYTECHNIC INSTITUTE), Andreea Sistrunk (VIRGINIA POLYTECHNIC INSTITUTE), Nathan Self (VIRGINIA POLYTECHNIC INSTITUTE), Chang-Tien Lu

(VIRGINIA POLYTECHNIC INSTITUTE), Naren Ramakrishnan (VIRGINIA POLYTECHNIC INSTITUTE)

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Duy Vo Nguyen Le (Nagoya Institute of Technology), Takuto Sakuma (Nagoya Institute of Technology), Taiju Ishiyama (Nagoya Institute of Technology), Hiroki Toda (Nagoya Institute of Technology), Kazuya Arai (Nagoya Institute of Technology), Masayuki Karasuyama (Nagoya Institute of Technology), Yuta Okubo (Sompo Japan Nipponkoa Insurance Inc), Masayuki Sunaga (Sompo Japan Nipponkoa Insurance Inc), Yasuo Tabei (RIKEN Center for Advanced Intelligence Project), Ichiro Takeuchi (Nagoya Institute of Technology)
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An Yan (University of Washington), Bill Howe (University of Washington)
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Payas Rajan (University of California, Riverside), Chinya Ravishankar (University of California, Riverside)

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Shen (Center of Data Science, University of Washington, Tacoma), John Krumm (Microsoft Research, Redmond, Microsoft Corporation)

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Hamada Rizk (Egypt-Japan University of Science and Technology)
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Ibrahim Sabek(University of Minnesota)
- **STGGAN: Spatial-temporal Graph Generation**
Liming Zhang (George Mason University)
- **Generating Historical Maps from Online Maps**
Zekun Li (University of Southern California), Yao-Yi Chiang (University of Southern California)
- **SRC: Discovering Human Activity Community in A City**
Tianyuan Huang (South China University of Technology)
- **Spatial Cluster Detection with Social Media Mobility Patterns**
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