

MDM 2019 Program Schedule (Tentative)

June 10 (Monday)

- 08:30-17:30 **Registration**
- 09:00-09:40 **Workshops/PhD Forum Joint Keynote 1**
Mobile Data Management Meets Deep Learning
Wang-Chien Lee (Pennsylvania State University)
- 09:40-10:20 **Workshops/PhD Forum Joint Keynote 2**
Enabling Mobile Applications and Mobile Data Analytics with Privacy
Li Xiong (Emory University)
- 10:20-10:45 **Coffee Break**
- 10:45-12:30 **Parallel Sessions of Workshops and PhD Forum**
(Detailed schedule at: <https://www.comp.hkbu.edu.hk/mdm2019/program.php>)
- 12:30-14:00 **Lunch**
- 14:00-15:30 **Parallel Sessions of Workshops and PhD Forum**
(Detailed schedule at: <https://www.comp.hkbu.edu.hk/mdm2019/program.php>)
- 15:30-16:00 **Coffee Break**
- 16:00-17:30 **Panel: PhD Student's Job Hunting - Complementary Perspectives from both Employers and Young Researchers**
Panel Moderators:
 - Raymond Chi-Wing Wong (Hong Kong University of Science and Technology)
 - Xike Xie (University of Science and Technology of China)Panellists:
 - Christian S. Jensen (Aalborg University)
 - Xing Xie (Microsoft Research Asia)
 - Cheng Long (Nanyang Technological University)
 - Jieming Shi (National University of Singapore)
 - Victor Junqiu Wei (Huawei Noah's Ark Lab)
 - Mingxuan Yuan (Huawei Noah's Ark Lab)

June 11 (Tuesday)

- 08:00-17:30 **Registration**
- 08:30-08:50 **Welcome**
- 08:50-09:50 **Keynote 1**
Title TBD
Walid G. Aref (Purdue University)

- 09:50-10:20 **Coffee Break**
- 10:20-11:20 **Invited Seminar Talk 1**
Geometric Top-k Processing: Updates since MDM'16
Kyriakos Mouratidis (Singapore Management University)
- 11:20-12:30 **Research Session 1: Localization**
Lighthouse: Enabling Landmark-based Accurate and Robust Next Generation Indoor LBSs on a Worldwide Scale (Regular)
Moustafa Youssef (Alexandria University and Google), Heba Abdelnasir (Alexandria University), Patrick Robertson (Google Inc.), Maria Puyol (Google Inc.), Etienne Le Grand (Google Inc.), Luigi Bruno (Google Inc.)
- Automated Product Localization through Mobile Data Analysis (Regular)**
Magnus K Oplenskedal (Norwegian University of Science and Technology), Amir Taherkordi (University of Oslo), Peter Herrmann (Norwegian University of Science and Technology)
- MR-Cubes: On-the-fly Computation of Location Popularity from Check-in Data Streams (Regular)**
Giorgos Constantinou (University of Southern California), Chrysovalantis Anastasiou (University of Southern California), Dimitris Stripelis (University of Southern California), Cyrus Shahabi (University of Southern California)
- Scalable and Accurate Estimation of Room-Level People Counts from Multi-Modal Fusion of Perimeter Sensors and WiFi Trajectories (Short)**
Fisayo Caleb Sangogboye (University of Southern Denmark), Mikkel Baun Kjaergaard (University of Southern Denmark)
- 12:30-14:00 **Lunch**
- 14:00-14:40 **Early Career Distinguished Lecture 1**
Title TBD
Guoliang Li (Tsinghua University)
- 14:40-16:00 **Research Session 2: Data Mining**
A Martingale-based Approach for Flight Behavior Anomaly Detection (Regular)
Shen-Shyang Ho (Rowan University), Matthew Schofield (Rowan University), Bo Sun (Rowan University), Jason Snouffer (ASRC Federal Mission Solutions), Jean Kirschner (ASRC Federal Mission Solutions)
- An Effective Approach on Mining Co-location Patterns from Spatial Databases with Rare Features (Regular)**
Peizhong Yang (Yunnan University), Wang Lizhen (Yunnan University), Xiaoxuan Wang (Yunnan University)
- Clustering Noisy Trajectories via Robust Deep Attention Auto-Encoders (Regular)**

Rui Zhang (Wuhan University of Technology), Peng Xie (Wuhan University of Technology), Hongbo Jiang (Hunan University), Chen Wang (Huazhong University of Science and Technology), Zhu Xiao (Hunan University), Ling Liu (Georgia Institute of Technology)

MISCELA: Discovering Correlated Attribute Patterns in Time Series Sensor Data (Regular)

Kei Harada (Osaka University), Yuya Sasaki (Osaka University), Makoto Onizuka (Osaka University)

16:00-16:20 **Coffee Break**

16:20-17:00 **Invited Industry Talk 1**

Beyond Recommendation: A Composite Coupon Distribution System behind Fu-Card

Wenliang Zhong (Ant Financial Services Group)

17:00-18:20 **AI & Industry Session**

Synchronization-Free GPS Spoofing Detection with Crowdsourced Air Traffic Control Data (Regular)

Gaoyang Liu (Huazhong University of Science and Technology), Rui Zhang (Wuhan University of Technology), Chen Wang (Huazhong University of Science and Technology), Ling Liu (Georgia Institute of Technology)

An Automated Framework for Explaining Facts Extracted From Mobility Datasets (Regular)

Anique Tahir (Arizona State University), Yuhan Sun (Arizona State University), Mohamed Sarwat (Arizona State University)

Sextant: Grab's Scalable In-Memory Spatial Data Store for Real-Time K-Nearest Neighbour Search (Regular)

Zhiyin Zhang (Grab), Xiaocheng Huang (Grab), Chaotang Sun (Grab), Shaolin Zheng (Grab), Bo Hu (Grab), Jagan Varadarajan (Grab), Yifang Yin (National University of Singapore), Roger Zimmermann (National University of Singapore), Guanfeng WANG (Grab)

DriveLaB: An Experimental Platform for Telematics (Regular)

Kasper Fromm Pedersen (Aalborg University), Kristian Torp (Aalborg University)

18:30-20:30 **Reception**

June 12 (Wednesday)

08:30-09:30 **Keynote 2**

New Advances in Spatial Trajectory Analytics

Xiaofang Zhou (The University of Queensland)

09:30-10:30 **Invited Seminar Talk 2**

Mobile Data Collection and Analysis with Local Differential Privacy

Ninghui Li (Purdue University), Qingqing Ye (Renmin University of China & Hong Kong Polytechnic University)

10:30-11:00 **Coffee Break**

11:00-11:40 **Early Career Distinguished Lecture 2**

Optimizing Systems for Geolocation Data: The Works

Mohamed Sarwat (Arizona State University)

11:40-12:50 **Research Session 3: Road Networks**

KOLQ in a Road Network (Regular)

Zitong Chen (Chinese University of Hong Kong), Yubao Liu (Sun Yat-Sen University), Ada Wai-Chee Fu (Chinese University of Hong Kong), Raymond Chi-Wing Wong (Hong Kong University of Science and Technology), Genan Dai (Sun Yat-Sen University)

Toward System-Optimal Route Guidance (Regular)

Robert J Fitzgerald (University of Colorado Denver), Farnoush Banaei-Kashani (University of Colorado Denver)

Efficient Batch Processing of Shortest Path Queries in Road Networks (Short)

Mengxuan Zhang (The University of Queensland), Lei Li (The University of Queensland), Wen Hua (The University of Queensland), Xiaofang Zhou (The University of Queensland)

Group Nearest Compact POI Set Queries in Road Networks (Short)

Sen Zhao (Emory University), Li Xiong (Emory University)

Safe Driving at Traffic Lights: An Image Recognition based Approach (Short)

Cuizhu Bao (Zhejiang Gongshang University), Chen Chen (East China Normal University), Hailin Kui (Jilin University), Xiaoyang Wang (Zhejiang Gongshang University)

12:50-14:00 **Lunch**

14:00-15:00 **Research Session 4: Queries**

Toward Efficient Processing of Spatio-temporal Workloads in a Distributed In-memory System (Regular)

Puya Memarzia (University of New Brunswick), Maria Patrou (University of New Brunswick), Md Mahbub Alam (University of New Brunswick), Suprio Ray (University of New Brunswick), Virendra Bhavsar (University of New Brunswick), Kenneth B. Kent (University of New Brunswick)

A Semantic Sequential Correlation based LSTM Model for Next POI Recommendation (Regular)

Guanhua Zhan (Hangzhou Dianzi University), Jian Xu (Hangzhou Dianzi University), Ming Xu (Hangzhou Dianzi University)

Time-Dependent Reachability Analysis: A Data-Driven Approach (Short)
Chrysovalantis Anastasiou (University of Southern California), Chao Huang (Tsinghua University), Seon Ho Kim (University of Southern California), Cyrus Shahabi (University of Southern California)

Passenger Searching from Taxi Traces Using HITS-based Inference Model (Short)

Zhifeng Huang (Hangzhou Dianzi University), Jian Xu (Hangzhou Dianzi University), Liming Tu (Hangzhou Dianzi University), Ning Zheng (Hangzhou Dianzi University), Ning Zheng (Hangzhou Dianzi University), Guanhua Zhan (Hangzhou Dianzi University)

15:00-16:15 **Poster & Demo Session**

SCQ: Stage-based, Context-aware, QoE-driven Power Optimization for Interactive Applications on Mobile Devices (Poster)

ChiKai Ho (National Tsing Hua University), Chung-Ta King (National Tsing Hua University), Yung-Ju Chang (National Tsing Hua University)

Central Station Based Demand Prediction in a Bike Sharing System (Poster)

Jianbin Huang (Xidian University), Xiangyu Wang (Xidian University)

A Practical Delivery Route Planning System (Demo)

Asger Gitz-Johansen (Aalborg University), Mikkel E. Holm (Aalborg University), Laurids Vinther Kirkeby (Aalborg University), Dan Kristiansen (Aalborg University), Alexander Stoica Ostenfeld (Aalborg University), Morten Konggaard Schou (Aalborg University), Bin Yang (Aalborg University)

A Charging Scheduling System for Electric Vehicles using Vehicle-to-Grid (Demo)

Nicklas K. Breum (Aalborg University), Martin N. Jorgensen (Aalborg University), Christian A. Knudsen (Aalborg University), Laerke B. Kristensen (Aalborg University), Bin Yang (Aalborg University)

Computing and Visualizing the Shortest Path between Moving Objects on Road Networks (Demo)

Jianqiu Xu (Nanjing University of Aeronautics and Astronautics), Siyu Chen (Nanjing University of Aeronautics and Astronautics), Hengcai Zhang (Institute of Geographic Sciences and Natural Resources Research)

GDMS: A Geospatial Data Mining System for Abnormal Event Detection and Visualization (Demo)

Meihong Wang (Xiamen University), Linling Qiu (Xiamen University), Xiaoli Wang (Xiamen University)

ORSUP: Optimal Route Search with Users' Preferences (Demo)

Qun Jiang (Sun Yat-Sen University), Wei Teng (Sun Yat-Sen University), Yubao Liu (Sun Yat-Sen University)

LaCAVR: Load and Constraints Aware Vehicle Rerouting (Demo)

David Bis (Iowa State University), Noah Bix (Iowa State University), Benjamin Gruman (Iowa State University), Sam Guanette (Iowa State University), Adam Hauge (Iowa State University), Hanna Moser (Iowa State University), Jimmy Paul (Crafty), Goce Trajcevski (Iowa State University)

POLAR: Geographic Placement Optimization for Latency Sensitive Applications (Demo)

Vinicius Mointerio De Lira (National Research Council of Italy), Emanuele Carlini (National Research Council of Italy), Patrizio Dazzi (National Research Council of Italy)

SSVisual: Intelligent Start-Stop System (Demo)

Cuizhu Bao (Zhejiang Gongshang University), Chen Chen (East China Normal University), Hailin Kui (Jilin University), Xiaoyang Wang (Zhejiang Gongshang University)

TrajSense: Trajectory Prediction from Sparse and Missing External Sensor Data (Demo)

Lívia A Cruz (Federal University of Ceará), Karine Zeitouni (University of Versailles St Quentin), Jose Macedo (Federal University of Ceará), Igo Brilhante (Federal University of Ceará)

16:15-16:45 **MDM 20-Year Influential Paper Award**

16:45-17:45 **Panel: MDM @ 20: Where We Have Been, Where Are We Now and Where Are We Heading?**

Panel Moderator:

- Arkady Zaslavsky (Deakin University, Australia)

Panellists:

- Prof Christian S. Jensen (Aarhus University, Denmark)
- Prof Panos K. Chrysanthis (University of Pittsburgh, USA)
- Prof Dik Lee (HKUST, Hong Kong)
- Prof Wang-Chien Lee (Penn State University, USA)
- Prof Karine Zeitouni (University of Versailles-St-Quentin, France)

18:00-20:30 **Banquet**

(Victoria Harbour Supreme, Tsim Sha Tsui)

June 13 (Thursday)

08:30-09:30 **Keynote 3**

Future of Personalized Recommendation Systems

Xing Xie (Microsoft Research Asia)

09:30-10:30 **Research Session 5: Crowdsourcing & Privacy**

Efficient Photo Crowdsourcing in Delay-tolerant Networks with Evolving POIs (Regular)

Shudip Datta (Missouri University of Science and Technology), Sanjay Kumar Madria (Missouri University of Science and Technology)

Publishing Sensitive Trajectory Data Under Enhanced I-Diversity Model (Regular)

Lin Yao (Dalian University of Technology), Xinyu Wang (Dalian University of Technology), Xin Wang (State of New York University at Stony Brook), Haibo Hu (Hong Kong Polytechnic University), Guowei Wu (Dalian University of Technology)

Detecting Mobile Crowdsensing Context in the Wild (Short)

Rachit Agarwal (Inria), Shaan Chopra (Inria), Vassilis Christophides (Inria), Nikolaos Georgantas (Inria), Valerie Issarny (Inria)

Optimizing Rebalance Scheme for Dock-less Bike Sharing Systems with Adaptive User Incentive (Short)

Yubin Duan (Temple University), Jie Wu (Temple University)

10:30-11:00 **Coffee Break**

11:00-11:40 **Early Career Distinguished Lecture 3
Learning to Route**

Bin Yang (Aalborg University)

11:40-12:50 **Research Session 6: Planning & Analysis**

Utility-time social event planning on EBSN (Regular)

Linlin Ding (Liaoning University), Hanlin Zhang (Liaoning University), Ze Chen (Liaoning University), Baoyan Song (Liaoning University)

k-Collective Influential Facility Placement over Moving Object (Regular)

Dan Li (Xidian University), Hui Li (Xidian University), Meng Wang (Xidian University), Jiangtao Cui (Xidian University)

A VLOS Compliance Solution to Ground/Aerial Parcel Delivery Problem (Regular)

Ji Zhang (Auburn University), Ting Shen (Auburn University), Wenlu Wang (Auburn University), Xunfei Jiang (Earlham College), Wei-Shinn Ku (Auburn University), MIn-Te Sun (National Central University), Yao-Yi Chiang (University of Southern California)

Mining Prevalent Co-location Patterns Based on Global Topological Relations (Short)

Jialong Wang (Yunnan University), Lizhen Wang (Yunnan University), Xiaoxu Wang (Yunnan University)

12:50-14:00 **Lunch**

14:00-14:40 **Invited Industry Talk 2
Recommender System for Real Mobile Applications: Two Case Studies**

Zhenhua Dong (Huawei Noah's Ark Lab)

14:40-15:40

Research Session 7: Prediction

TTDM: A Travel Time Difference Model for Next Location Prediction (Regular)

Qingjie Liu (Shandong University), Yixuan Zuo (Shandong Jianzhu University), Xiaohui Yu (York University), Meng Chen (Shandong University)

STCNN: A Spatio-Temporal Convolutional Neural Network for Long-Term Traffic Prediction (Regular)

Zhixiang He (City University of Hong Kong), Chi-Yin Chow (City University of Hong Kong), Jia-Dong Zhang (City University of Hong Kong)

Temporal Graph Convolutional Networks for Traffic Speed Prediction Considering External Factors (Regular)

Liang Ge (Chongqing University), Hang Li (Chongqing University), Junling Liu (Chongqing University), Aoli Zhou (Chongqing University)

15:40-16:00

Coffee Break

16:00-17:00

Transport and Urban Analytics 1

MapReuse: Recycling routing API queries (Regular)

Rade Stanojevic (Qatar Computing Research Institute), Sofiane Abbar (Qatar Computing Research Institute), Mohamed F. Mokbel (University of Minnesota - Twin Cities)

Road Intersection Detection Based on Direction Ratio Statistics Analysis (Regular)

Min Pu (East China Normal University), Jiali Mao (East China Normal University), Yuntao Du (East China Normal University), Yibin Shen (East China Normal University), Cheqing Jin (East China Normal University)

Traffic Congestion Prediction by Spatiotemporal Propagation Patterns (Short)

Xiaolei Di (Tongji University), Qinpei Zhao (Tongji University), Weixiong Rao (Tongji University)

STAR: A Concise Deep Learning Framework for Citywide Human Mobility Prediction (Short)

Hongnian Wang (Sichuan Normal University), Han Su (Sichuan Normal University)

17:00-18:00

Transport and Urban Analytics 2

Trajectory Prediction from a Mass of Sparse and Missing External Sensor Data (Regular)

Lívia A Cruz (Federal University of Ceará), Karine Zeitouni (University of Versailles St Quentin), Jose Macedo Macedo (Federal University of Ceara)

Building a Large-Scale Microscopic Road Network Traffic Simulator in

Apache Spark (Regular)

Zishan Fu (Arizona State University), Jia Yu (Arizona State University),
Mohamed Sarwat (Arizona State University)

A Personal Location Prediction Method to Solve the Problem of Sparse Trajectory Data (Short)

Fan Li (Shenzhen University), Qingquan Li (Shenzhen University), Zhen Li (Shenzhen University), Zhao Huang (Shenzhen University), Xiaomeng Chang (Shenzhen University), Jizhe Xia (Shenzhen University)

Deep Learning-Based Spatial Analytics for Disaster-Related Tweets: An Experimental Study (Short)

Shayan Shams (Louisiana State University), Sayan Goswami (Louisiana State University), Kisung Lee (Louisiana State University)