IEEE MDM 2023 Detailed Program

July 3 (Monday)	DAY ONE
Venue	SIT@NYP Building
	Workshops

July 4 (Tuesday)	DAY TWO

08:00-17:00 — **Registration**

08:45-09:00 — **Welcome**
Shonali Krishnaswamy (AIDA Technologies, Singapore)

09:00-10:00 — **Keynote 1**
Towards Accurate Open Source Map Services
Mohamed Mokbel, University of Minnesota (UMN), USA
Chair: Walid Aref (Purdue University, USA)

10:00-10:30 — **Coffee Break**

10:30-12:00 — **Research Session 1: Recommendation Systems**
Chair: Flora Salim (University of New South Wales, Australia)

POI Recommendation by Learning Short-, Long- and Mid-Term Preferences through GNN (regular)
Yue Zhao (Osaka University),Yihong Zhang (Osaka University), Daichi Amagata (Osaka University), Takahiro Hara (Osaka University)

LRS4DP: Location Recommendation System for Destination Prediction (regular)
Bing Zhao (Institute for Infocomm Research),Haodong Sun (Beijing University of Technology); Wee Siong Ng (Institute for Infocomm Research, Singapore); Lee Roy Ka Wei (SUTD); Yanyan Chen (Beijing University of Technology)

TrustGAT: Sparse Trust Data Mining with Graph Attention for Mobile Social Networks (regular)
Maolan Zhang (Chongqing University); Di Xiao (Chongqing University)

Utilization of Spatio-Temporal and Social Information for POI Group Recommendation (short)
Pengyu Niu (Northwest University); Boting Qu (Northwest University); Jun Feng (Northwest University); Xin Wang (University of Calgary, Canada)

12:00-13:30 — **Lunch**

13:30-15:00 — **Invited Seminar Talk**
Recent Trends in Sensor-based Activity Recognition
Takuya Maekawa (Osaka University); Qingxin Xia (Graduate School of Information Science and Technology, Osaka university); Ryoma Otsuka (Osaka University); Naoya Yoshimura (Osaka University); Kei Tanigaki (Osaka University)
Chair: Takahiro Hara (Osaka University, Japan)

15:00-15:30 — **Coffee Break**

15:30-16:35 — **Research Session 2: Mobility Data Science Applications**
Chair: Yuya Sasaki (Osaka University, Japan)

Self-supervised Activity Representation Learning with Incremental Data: An Empirical Study(short)
Jason Liu (University of New South Wales); Shohreh Deldari (University of New South Wales); Hao Xue (University of New South Wales); Van Nguyen (Department of Defence); Flora D. Salim (University of New South Wales)

One-Shot Federated Learning for LEO Constellations that Reduces Convergence Time from Days to 90 Minutes(regular)
Mohamed Elmahallawy (Missouri University of science); Tie Luo (Department of Computer Science, Missouri University of Science and Technology)

ML-based Individual Contribution Assessment of Basketball Players from Their Trajectories (regular)
Takeshi Tanaka (Hitachi, Ltd.); Akira Uchiyama (Osaka University); Hirozumi Yamaguchi (Osaka University, Japan)

16:35-18:15 — **Application & industry Session**
Chair: Costantinos Costa (Rinnoco Ltd, Cyprus)

An IoT Data System for Solar Self-Consumption (regular)

Soteris Constantinou (University of Cyprus); Nicolas Polycarpou (University of Cyprus); Constantinos Costa (Rinnoco Ltd); Andreas Konstantinidis (Frederick University); Panos K. Chrysanthis (University of Pittsburgh); Demetrios Zeinalipour-Yazti (University of Cyprus)

Predicting Parking Lot Availability by Graph-to-Sequence Model: A Case Study with SmartSantander (regular)
Yuya Sasaki (Osaka University); Junya Takayama (Graduate school of information science and technology, Osaka University); Juan Ramón Santana (Universidad de Cantabria); Shohei Yamasaki (Osaka University); Tomoya Okuno (Osaka University); Makoto Onizuka (Osaka University)

A Decentralised Super App (regular)
Fernando K Carvalho Ota (University of Luxembourg)*; Cristina Godoy Bernardo de Oliveira (Universidade de São Paulo); Rafael Meira Silva (Universidade de São Paulo); Jorge Augusto Meira (SnT, University of Luxembourg); Radu State (University of Luxembourg)

A System for Monitoring and Analyzing Human Indoor Mobility And Air Quality (regular)
Kyle Kai Qin (RMIT University); Mohammad Saiedur Rahaman (RMIT); Yongli Ren (RMIT University); Chi Tsun (Ben) Cheng (RMIT); Ivan Cole (RMIT); Flora D. Salim (University of New South Wales)

July 5 (Wednesday)	**DAY THREE**

08:55-09:00 **Opening**

09:00-10:00 **Keynote 2**
Trajectory management and exploration
Baihua Zheng, Singapore Management University (SMU), Singapore
Chair: Christian Becker (University of Stuttgard, Germany)

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

10:30-12:00 **Research Session 3: Queries and Mobile Data Processing**
Chair: Hirozumi Yamaguchi (Osaka University, Japan)

Approximate Reverse Top-k Spatial-Keyword Queries (regular)
Shunya Nishio (Osaka University); Daichi Amagata (Osaka University); Takahiro Hara (Osaka University, Japan)

On Spatial Crowdsourcing Query under Pandemics (regular)
Cedric Parfait Kankeu Fotsing (Academia Sinica); Guang-Siang Lee (Institute of Information Science, Academia Sinica); Ya-Wen Teng (Institute of Information Science, Academia Sinica); Chih-Ya Shen (National Tsing Hua University); Yi-Shin Chen (National Tsing Hua University); De-Nian Yang (Academia Sinica)

Scalable Communication for Mobile Multi-Agent Cooperative Detection (short)
Hongye Gao (Tongji University); Weixiong Rao (Tongji U)

DDCEL: Efficient Distributed Doubly Connected Edge List for Large Spatial Networks (regular)
Laila Abdelhafeez (University of California, Riverside); Amr Magdy (University of California Riverside); Vassilis J. Tsotras (UC Riverside)

12:00-13:30 **Lunch**

13:30-15:00 **Research Session 4: Learning and Analytics**
Chair: Shonali Krishnaswamy (AIDA Technologies, Singapore)

A multi-view anomalous co-location detection framework considering both intra- and inter-feature coupling (short)
Xiwen Jiang (Yunnan University); Wang Lizhen (Yunnan University); Hongmei Chen (Yunnan University); Vanha Tran (FPT University); Junyi Li (Yunnan University)

RIPGeo: Robust Street-Level IP Geolocation(regular)
Wenxin Tai (University of Electronic Science and Technology of China); Bin Chen (UESTC); Kai Chen (HKUST); Ting Zhong (School of Information and Software Engineering, University of Electronic Science and Technology of China); Yong Wang (HKUST); Fan Zhou (School of Information and Software Engineering, University of Electronic Science and Technology of China)

CSGAN: Modality-Aware Trajectory Generation via Clustering-based Sequence GAN (regular)
Minxing Zhang (Emory University); Haowen Lin (University of Southern California); Shun Takagi (Kyoto University); Yang Cao (Hokkaido University); Cyrus Shahabi (Computer Science Department. University of Southern California); Li Xiong (Emory University)

Trajectory-User Linking using Higher-order Mobility Flow Representations (regular)
Mahmoud Alsaeed (York University); Ameeta Agrawal (Portland State University); Manos Papagelis (York University)

15:00-15:30 **Coffee Break**

15:30-16:45	**Demo Session**

Chair: Prem Prakash Jayaraman (Swinburne University, Australia)

GreenCap: A Platform for Solar Self-Consumption using IoT Data
Soteris Constantinou (University of Cyprus); Nicolas Polycarpou (University of Cyprus); Constantinos Costa (Rinnoco Ltd); Andreas Konstantinidis (Frederick University); Panos K. Chrysanthis (University of Pittsburgh); Demetrios Zeinalipour-Yazti (University of Cyprus)

FixCyprus: Crowdsourcing Smartphone Imagery Data For Managing Road Safety Hazards
George Christou (University of Cyprus); Andreas Georgiou (University of Cyprus); Christos Laoudias (University of Cyprus); Aristotelis Savva (Ministry of Transport, Communications and Works); Christos Panayiotou (KIOS Research Center for Intelligent Systems and Networks, University of Cyprus)

δ-CHUCPM: A δ-closed high utility co-location pattern miner
Vanha Tran (FPT University); Cao Dai Pham (Le Quy Don Technical University); Thanhcong Do (FPT University); Hoangnam Pham (FPT University)

CAPRIO with Inclusive Pedestrian Path Recommendations
Brian Nixon (University of Pittsburgh); Zhiyong Chen (University of Pittsburgh); Sai Konduru (University of Pittsburgh); Yuxin Liu (University of Pittsburgh); Constantinos Costa (University of Pittsburgh); Panos K. Chrysanthis (University of Pittsburgh)

A System for Collaborative Surveillance of Geographic Areas by Fleet of Drones
Prabin Giri (Iowa State University); Marcus Jakubowsky (Iowa State University); Jaden Forde (Iowa State University); Joseph Edeker (Iowa State University); Rowan Collin (Iowa State University); Jacob Houts (Iowa State University); Thomas Glass (Iowa State University); Goce Trajcevski (Iowa State University); Ouri Wolfson (University of Illinois)

RescueAid: Smartphone-Aided Situational Awareness For Emergency Response
Christos Laoudias (University of Cyprus); Panayiotis Kolios (University of Cyprus); Georgios Ellinas (University of Cyprus)

STM - A Privacy-Enhanced Solution for Spatio-Temporal Trajectory Management
Haruki Yonekura (Osaka University); Ren Ozeki (Osaka University); Hamada Dr. Rizk (Osaka University); Hirozumi Yamaguchi (Osaka University, Japan)

Efficient and Secure: Privacy-Preserving Federated Learning for Resource-Constrained Devices
Muhammad Ayat Hidayat (Kyushu University); Nakamura Yugo (Kyushu University); Yutaka Arakawa (Kyushu University)

16:45-17:45	**Panel: Do's and Don'ts in Mobility Data Science**

Panel moderator
Daniela Nicklas (University of Bamburg, Germany)
Panelists
Reynold Cheng (University of Hong Kong)
Mohamed F. Mokbel (University of Minnesota - Twin Cities, USA)
Flora Salim (University of New South Wales, Australia)
Cyrus Shahabi (University of Southern California, USA)
Hirozumi Yamaguchi (Osaka University, Japan)

17:45-19:00	**Award session and Test-of-time Talk**

Chair: Panos Chrysanthis (University of Pittsburgh, USA)

19:00-21:30	**Banquet**

July 6 (Thursday)	**DAY FOUR**

08:55-09:00	**Opening**

09:00-10:00	**D&I Keynote 3** **Navigating the Social and Ethical Responsibilities of Computing**

Professor Gill Dobbie, University of Auckland, New Zealand
Chair: Sanjay Madria (Missouri University of Science and Technology, USA)

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

10:30-11:50	**Research Session 5: Localization and Privacy**

Chairs: Reynold Cheng (University of Hong Kong)

AGC-DP: Differential Privacy with Adaptive Gaussian Clipping for Federated Learning (regular)
Muhammad Ayat Hidayat (Kyushu University); Nakamura Yugo (Kyushu University); Yutaka Arakawa (Kyushu University); Billy Dawton (Kyushu University)

RaFID: A Lightweight Approach to Radio Frequency Interference Detection in Time Domain using LSTM and Statistical Analysis (short)
Luke Smith (Missouri University of Science and Technology); Vishesh Kanwar (Missouri University of Science and Technology); Maciej Zawodniok (Missouri S&T); Sanjay Kumar Madria (Missouri University of Science & Technology, USA)

Balancing Privacy and Utility of Spatio-Temporal Data for Taxi-Demand Prediction (short)
Ren Ozeki (Osaka university); Haruki Yonekura (Osaka University); Hirozumi Yamaguchi (Osaka University, Japan); Hamada Dr. Rizk (Osaka University)

Privacy-Preserving by Design: Indoor Positioning System Using Wi-Fi Passive TDOA (regular)
Mohamed M Haikal (Benha University); Hamada Dr. Rizk (Osaka University); Moustafa Youssef (Alexandria University and Google)

11:50-13:30   **Lunch**

13:30-15:00   **Invited Seminar Talk**
Kernel Density Visualization for Big Geospatial Data: Algorithms and Applications
Tsz Nam Chan (Hong Kong Baptist University); Leong Hou U (University of Macau); Byron Choi (Hong Kong Baptist University); Jianliang Xu (Hong Kong Baptist University); Reynold Cheng (The University of Hong Kong, China)
Chair: Hamada Rizk (Osaka University)

15:00-15:30   **Coffee Break**

15:30-17:10   **Research Session 6: Transport and Urban Analytics**
Chair: Cyrus Shahabi

Pairwise and Hyper-correlations Based Spatio-temporal Neural Networks for Traffic Speed Predictions (regular)
Zhixiang He (Beijing University of Technology); Jia-Dong Zhang (City University of Hong Kong); Chi-Yin Chow (Flowering Tree Tech Limited); Ning Li (Neufast); Xiliang Liu (Beijing University of Technology); Pengfei Lin (Beijing University of Technology); Xiaoli Sun (Shenzhen University)

Map-matching on Wireless Traffic Sensor Data with a Sequence-to-Sequence Model (regular)
Zichun Zhu (The University of Queensland); Dan He (University of Queensland); Wen Hua (The Hong Kong Polytechnic University); Jiwon Kim (The University of Qeensland); Hua Shi (The University of Queensland)

Are footpaths encroached by shared e-scooters? Spatio-temporal Analysis of Micro-mobility Services (regular)
Hiruni Kegalle (RMIT); Danula Hettiachchi (RMIT University); Jeffrey Chan (RMIT University); Flora D. Salim (University of New South Wales); Mark Sanderson (RMIT University)

Time-variant road network-based bridgelets (regular)
Chrysovalantis Anastasiou (University of Southern California); John Krumm (Microsoft Research); Cyrus Shahabi (Computer Science Department. University of Southern California)

17:10-17:25   **Closing**