

SIGSPATIAL 2023 PRELIMINARY Program Overview (Oct 18 Version)

Workshops Monday	Day One (14th) - Tuesday		Day Two (15th) - Wednesday		Day Three (16th) - Thursday	
TBA	08:15-08:30	Opening				
	08:30-09:30	Session 1 Privacy	08:30-09:30	Session 4 Spatial Data Mining and Knowledge Discovery I	08:30-9:30	Session 8 Geospatial Computer Vision Applications
	09:30-10:30	Keynote 1 Senseable Cities	09:30-10:30	Keynote 2 Ocean and Climate, and the Need for Marine Data Science	09:30-10:30	Session 9 Smart Cities
	10:30-11:00	Break	10:30-11:00	Break	10:30-11:00	Break
	11:00-12:00	Data & Resources Track	11:00-12:00	GIS Cup	11:00-12:00	Session 10 Spatio-Temporal Data Analysis I
	12:00-13:00	Lunch (on-site)	12:00-13:00	Lunch (on-site) + SpatialW Meet (invitation only)	12:00-13:00	Lunch (on-site)
	13:00-13:40 (20 min)	Session 2 Earth Observation	13:00-13:40 (20 min)	Session 5 Cartography and Computational Geometry	13:00-13:40 (20 min)	Session 11 Spatio-Temporal Data Analysis II
	13:40-15:00 (80 min)	Session 3 Industry	13:40-15:00 (80 min)	Session 6 Spatial Data Mining and Knowledge Discovery II	13:40-15:00 (80 min)	Vision Track
	15:00-15:30	Break	15:00-15:30	Break	15:00-15:30	Break
	15:30-17:00	Posters & Demos (lightning session)	15:30-16:30	SRC	15:30-16:30	Session 12 Location-Based Services
	17:00-18:00	Poster setup time	16:30-17:30	Session 7 Data Structures and Query Processing	16:30-17:30	Session 13 Intelligent Transportation
	18:00-...	Reception (alongside posters and demos)	17:30-18:30	Business Meeting	17:30-18:00	Closing
			18:30-19:30	(moving to dinner venue)	19:00-...	2023-2024 Organizers Dinner
			19:30-...	Dinner & awards		

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Keynotes		
	Carlo Ratti	Senseable Cities
	Arne Biastoch	Ocean and Climate, and the need for Marine Data Science
Session 1		
	Privacy	
2280	Chung Park, Taekyoon Choi, Taesun Kim, Mincheol Cho, Jumi Hong, Minsung Choi and Jaesul Cho	FedGeo: Privacy-Preserving User Next Location Prediction with Federated Learning
8388	Alexandra Kapp and Helena Mihaljević	Reconsidering Utility: Unveiling the Implications of Synthetic Mobility Data Generation Algorithms in Real-World Scenarios
9694	Liyue Fan and Luca Bonomi	Hide Your Distance: Privacy Risks and Protection in Spatial Accessibility Analysis
Session 2		
	Earth Observation	
1449	Zhinao Wang, Yiqun Xie, Xiaowei Jia, Lei Ma and George Vert	High-Fidelity Deep Approximation of Ecosystem Simulation over Long-Term at Large Scale
6871	Fatihcik Woker, Christian Beitz, Matthias Renz and Arne Biastoch	SUSTeR: Sparse Unstructured Spatio Temporal Reconstruction on Traffic Prediction
Session 3		
	Industry	
1086	Andreas Mitsarolis, Brian Murray, Nikos Pelekis and Yannis Tzafanidis	Collision Risk Assessment and Forecasting on Maritime Data (Industrial Paper)
3240	Fuqian Li, Fuan Yan, Hongjie Su, Deng Wang, Fan Zuo, Yue Zhicheng Liu, Yidan Liao, Zan Sun, Ruankang Guan, Danning Jiang and Yong Li	Periodic Spatiotemporal Graph Convolutional Network for Traffic Congestion Prediction (Industrial Paper)
4196		Which Traffic Light Should You Look at? Automatically Associating Traffic Lights with Roads in High-Definition Maps (Industrial Paper)
7681	Justin Downes, Sam Saltwick and Anthony Chen	Salience Driven Imagery Preprocessing for Efficient Compression (Industrial Paper)
Session 4		
	Spatial Data Mining and Knowledge Discovery I	
2515	Maria Despoina Siampou, George Papadakis, Nikos Mamoulis and Manolis Koubarakis	Supervised Scheduling for Geospatial Interlinking
3047	Zelin Xu, Tingsong Xiao, Wenchong He, Yu Wang and Zhe Jiang	Spatial Knowledge-Infused Hierarchical Learning: An Application in Flood Mapping on Earth Imagery
5858	Gian Alix and Manos Papagelis	PathletRL: Trajectory Pathlet Dictionary Construction using Reinforcement Learning
Session 5		
	Cartography and Comp. Geometry	
4513	Sven Gedick, Martin Tomko, Stephan Winter and Jan-Henrik Haunert	Selecting Landmarks for Wayfinding Assistance Based on Advance Visibility
9873	Fandel Lin, Craig Knoblock, Basel Shbita, Binh Vu, Zekun Li and Yao-Yi Chiang	Exploiting Polygon Metadata to Understand Raster Maps - Accurate Polygonal Feature Extraction
Session 6		
	Spatial Data Mining and Knowledge Discovery II	
570	Arash Hajisafi, Haowen Lin, Sina Shaham, Haoji Hu, Maria Despoina Siampou, Yao-Yi Chiang and Cyrus Shahabi	Learning Dynamic Graphs from All Contextual Information for Accurate Point-of-Interest Visit Forecasting
6625	Yingrong Qin, Chen Gao, Zhen Tu, Hongsheng Wu, Shuangqing Wei, Yue Wang, Lin Zhang and Yong Li	Modeling Multi-Grained User Preference in Location Visitation
7841	Yu Liu, Jingtao Ding and Yong Li	KnowSite: Leveraging Urban Knowledge Graph for Site Selection
8585	Yongyi Liu, Yunfan Kang, Amr Magdy and Ahmed Mahmood	Scalable Evaluation of Local K-Function for Radius-Accurate Hotspot Detection in Spatial Networks
Session 7		
	Data Structures and Query Processing	
2146	Yeasir Rayhan and Walid Aref	SIMD-ified R-tree Query Processing and Optimization
5702	Keivin Isufaj, Mohamed Elsharif, Sofiane Abbar and Mohamed Mokbel	GTI: Graph-based Trajectory Imputation
8611	Lohan Meunier and Ying Zhao	Reachability Queries on Dynamic Temporal Bipartite Graphs
Session 8		
	Geospatial Computer Vision Applications	
897	Linhan Wang, Shuo Lei, Jianfeng He, Shengkun Wang, Min Zhang and Chang-Tien Lu	Self-Correlation and Cross-Correlation Learning for Few-Shot Remote Sensing Image Semantic Segmentation
1025	Sidi Wu, Yizi Chen, Konrad Schindler and Lorenz Hurni	Cross-attention Spatio-temporal Context Transformer for Semantic Segmentation of Historical Maps
3857	Hao Li, Jiapan Wang, Johann Maximilian Zollner, Gengchen Mai, Ni Lao and Martin Werner	Rethink Geographical Generalizability with Unsupervised Self-Attention Model Assemble: A Case Study of OpenStreetMap Missing Building Detection in Africa
Session 9		
	Smart Cities	
645	Jiahui Gong, Yu Liu, Tong Li, Haoye Chai, Xing Wang, Junlan Feng, Chao Deng, Depeng Jin and Yong Li	Empowering Spatial Knowledge Graph for Mobile Traffic Prediction
2804	Xi Yang, Suining He and Mahan Tabatabaie	Equity-Aware Cross-Graph Reinforcement Learning for Bike Station Network Expansion
8164	Zhilun Zhou, Jingtao Ding, Yu Liu, Depeng Jin and Yong Li	Towards Generative Modeling of Urban Flow through Knowledge-enhanced Denoising Diffusion
Session 10		
	Spatio-Temporal Data Analysis I	
2572	Yinzhou Tang, Huandong Wang and Yong Li	Enhancing Spatial Spread Prediction of Infectious Diseases through Integrating Multi-scale Human Mobility Dynamics
2608	Chiara Pugliese, Francesco Lettich, Fabio Pinelli and Chiara Renso	Summarizing Trajectories Using Semantically Enriched Geographical Context
4280	Haomin Wen, Youfang Lin, Yutong Xia, Huaiyu Wan, Qingsong Wen, Zimmermann Roger and Yuxuan Liang	DiffSTG: Probabilistic Spatio-Temporal Graph Forecasting with Denoising Diffusion Models
Session 11		
	Spatio-Temporal Data Analysis II	
4624	Hussah Alrashid, Amr Magdy and Sergio Rey	Statistical Inference for Spatial Regionalization
8888	Yijun Lin and Yao-Yi Chiang	Modeling Spatially Varying Physical Dynamics for Spatiotemporal Predictive Learning
Session 12		
	Location-Based Services	
996	Fandel Lin and Craig Knoblock	Indirect Cooperation in Distributed Stationary-Resource Searching with Predefined Destinations
7464	Sherif Mostafa, Khaled A. Harras and Moustafa Youssef	UniCellular: An Accurate and Ubiquitous Floor Identification System using Single Cell Tower Information
8433	Xiaohang Xu, Toyotaro Suzumura, Jiawei Yong, Masatoshi Hanai, Chuang Yang, Hiroki Kanezashi, Renhe Jiang and Shintaro Fukushima	Revisiting Mobility Modeling with Graph: A Graph Transformer Model for Next Point-of-Interest Recommendation
Session 13		
	Intelligent Transportation	
2221	Alex Chin and Zhiwei Qin	A Unified Representation Framework for Rideshare Marketplace Equilibrium and Efficiency
7670	Giuliano Cornacchia, Mirco Nanni and Luca Pappalardo	One-Shot Traffic Assignment with Forward-Looking Penalization
7705	Mudan Wang, Huan Yan, Huandong Wang, Yong Li and Depeng Jin	Contagion Process Guided Cross-scale Spatio-Temporal Graph Neural Network for Traffic Congestion Prediction
Vision Track		
1362	Mohamed Mokbel and Areeg Mostafa	Towards Open-Source Maps Metadata (Vision Track)
2437	Jinmeng Rao, Song Gao, Gengchen Mai and Krzysztof Janowicz	Building Privacy-Preserving and Secure Geospatial Artificial Intelligence Foundation Models (Vision Track)
2943	Mark Tenzer, Zeeshan Rasheed and Khurram Shafique	The Geospatial Generalization Problem: When Mobility Isn't Mobile (Vision Track)
3746	Jianzhong Qi, Zuqing Li and Egemen Tanin	MaaSDB: Spatial Databases in the Era of Large Language Models (Vision Track)

4748	Yiqun Xie, Zhaonan Wang, Gengchen Mai, Yanhua Li, Xiaowei Jia, Song Gao and Shaowen Wang	"Geo"-Foundation Models: Reality, Gaps and Opportunities (Vision Track)
6189	Christophe Claramunt, Christine Bassem, Demetrios Zeinalipour-Yazti, Baihua Zheng, Goce Trajceviski and Kristian Torp	Spatial Data Management for Green Mobility (Vision Track)
9242	Hao Xue and Flora D. Salim	Artificial General Intelligence for Human Mobility (Vision Track)
Data and Resources Track		
1316	Jingwei Zuo, Wenbin Li, Michele Baldo and Hakim Hacid.	Unleashing Realistic Air Quality Forecasting: Introducing the Ready-to-Use PurpleAirSF Dataset (Data and Resources Track)
1905	Manar Attar, Shuai Wang, Ronald Siebes and Eirik Kultorp.	Converting and Enriching Geo-annotated Event Data: Integrating Ukraine Resilience Information [Data and Resources Track]
3229	Hossein Amiri, Shiyang Ruan, Joon-Seok Kim, Hyunjee Jin, Hamdi Kavak, Andrew Crooks, Dieter Pfoser, Carola Wenk and Andreas Züfle.	Massive Trajectory Data Generation using a Patterns of Life Simulation (Data and Resources Track)
5213	Ali Faraji, Jing Li, Gian Alix, Mahmoud Alsaede, Nina Yanin, Amirhossein Nadiri and Manos Papagelis. Point2Hex: Higher-order Mobility Flow Data and Resources	Point2Hex: Higher-order Mobility Flow Data and Resources (Data and Resources Track)
6560	Marco Landt-Hayen, Willi Rath, Sebastian Wahl and Martin Claus.	CICMoD - A Climate Index Collection Benchmark (Data and Resources Track)
7423	Mahmoud Sakr and Gaspard Merten.	Brussels Mobility Observatory (Data and Resources Track)
8511	Chen Jiang, Wenlu Wang, Naqing Pan and Wei-Shinn Ku.	A Multimodal Geo Dataset for High-resolution Precipitation Forecasting (Data and Resources Track)
9410	Yunhe Feng, Zexuan Meng, Colton Clemmer, Heng Fan and Yan Huang.	A Multi-granularity Decade-Long Geo-Tagged Twitter Dataset for Spatial Computing (Data and Resources Track)
9865	Martin Werner, Hao Li, Johann Maximilian Zollner, Balthasar Teuscher and Fabian Deuser.	Bavaria Buildings - A Novel Dataset for Building Footprint Extraction, Instance Segmentation, and Data Quality Estimation (Data and Resources Track)
Poster and Demos		
DEMOS		
184	Andreas Tritsarolis, Nikos Pelekis and Yannis Theodoridis.	VesselVision: Fleet Safety Awareness over Streaming Vessel Trajectories (Demo Paper)
422	Steffen Strohm, Finn Witzany, Christian Beth and Matthias Renz.	Integrating Automated Annotation of Magnetic Prospection Data into GIS Workflows in Archaeology (Demo Paper)
1193	Mertcan Erdem and Berk Anbaroglu.	Reproducible Extraction of Building Footprints from Airborne LiDAR Data: A Demo Paper (Demo Paper)
1587	Dimitris Biliadas, Anastasios Mantas, Filippos Yfantis, George Stamoulis, Manolis Koubarakis, Spyros Kondylatos, Ioannis Prapas and Ioannis Papoutsis.	Fire Risk Management using Data Cubes, Machine Learning and OBDA systems (Demo Paper)
1784	Jina Kim, Zekun Li, Yijun Lin, Min Namgung, Leeje Jang and Yao-Yi Chiang.	The mapKurator System: A Complete Pipeline for Extracting and Linking Text from Historical Maps (Demo Paper)
3292	Hannah Bast, Patrick Brosi, Johannes Kalmbach and Axel Lehmann.	Efficient Interactive Visualization of Large Geospatial Query Results (Demo Paper)
3298	Chiqun Zhang, Antonios Karatzoglou, Helen Craig and Dragomir Yankov.	Map GPT Playground: Smart Locations and Routes with GPT (Demo Paper)
4138	Christian Lüf, Denis Mayr Lima Martins, Marcos Antonio Vaz Salles, Yongluan Zhou and Fabian Gieseke.	RapidEarth: A Search Engine for Large-Scale Geospatial Imagery (Demo Paper)
5817	Nojus Makulavičius, Agnė Brilingaitė, Linas Bukauskas, Alminas Čivilis, Virgilijus Krinickij and Simonas Šaltenis.	E-TRI: E-Vehicle Testbed Routing Infrastructure (Demo Paper)
6035	Keisuke Otaki, Ai Nakada, Tomosuke Maeda, Takayoshi Yoshimura and Hiroyuki Sakai.	Roaming Navigation for Pedestrians (Demo Paper)
6768	Zhaonan Wang, Bowen Jin, Wei Hu, Minhao Jiang, Seungyeon Kang, Zhiyuan Li, Jiawei Han and Shaowen Wang.	Geospatial Knowledge Hypercube (Demo Paper)
6844	Siji Chen, Yanshen Sun, Peihan Li, Lifeng Zhou and Chang-Tien Lu.	Spatial Temporal Graph Neural Networks for Decentralized Control of Robot Swarms (Demo Paper)
7354	Kevin Isufaj, Jade Choghari and Mohamed Elshrif.	A Demonstration of GTI: A Scalable Graph-based Trajectory Imputation (Demo Paper)
8369	Kasper Pedersen and Kristian Torp.	Web-Based Traffic-Sign Detection (Demo Paper)
POSTERS (Short papers)		
533	Suyash VishRejecti, Carolina Osorio, Akhil Shetty, Ivel Tsosuren and Neha Arora	On the Use of Abundant Road Speed Data for Travel Demand Calibration of Urban Traffic Simulators
1452	Achilleas Michalopoulos, Dimitrios Tsitsigkos, Panagiotis Bouras, Nikos Mamoulis and MaRejectlis Terrovitis	Efficient Distance Queries on Rejectn-point Data
2410	Philipp Matthes, Daniel Jeschor and Thomas Springer	GeoAI-Powered Lane Matching for Bike Routes in GLOSA Apps
2843	Huimin Ren, Sijie Ruan, Ye Yuan, Yanhua Li, Jie Bao, Tianfu He, Huajun He, Chuishi Meng and Yu Zheng	A Rejectvel Approach for Company Real Workplace Identification via E-commercial Data (Industrial Paper)
3593	Zhenyu Han, Yanxin Xi, Tong Xia, Yu Liu and Yong Li	Devil in the Landscapes: Inferring Epidemic Exposure Risks from Geo-Tagged Imagery
3992	Sai Deepthi Yeddula, Chen Jiang, Bo Hui and Wei-Shinn Ku	Traffic Accident Hotspot Prediction Using Temporal Convolutional Networks: A Spatio-Temporal Approach
4113	Mengyi Liu, Xieyang Wang, Jianqiu Xu and Hua Lu	NALSpatial: An Effective Natural Language Transformation Framework for Queries over Spatial Data
4281	Daria Reshetova, Swetava Ganguli, C. V. Krishnakumar Iyer and Vipul Pandey	SeMAnD: Self-Supervised Anomaly Detection in Multimodal Geospatial Datasets
4579	Chiqun Zhang, Dragomir Yankov, Antonios Karatzoglou, Michael Evans, Florin Sabau and Oussama Dhifallah	A Post-routing ETA Model Providing Confidence Feedback (Industrial Paper)
4600	Yuanbo Tang, Yang Li and Zhiyuan Peng	Explainable Trajectory Representation Based on Dictionary Learning
4794	CristiaReject Landi, Riccardo Guidotti, Mirco Nanni and Anna Monreale	The Trajectory Interval Forest Classifier for Trajectory Classification
4894	Renzhong Wang, Maryam Najafabadi, Chiqun Zhang, Long-Qi Chen, Tanya Olenina and Dragomir Yankov	GPT Applications in Relevance Model Training in Map Search (Industrial Paper)
6010	Nikolaos Koutroumanis, Christos Doukeridis, Chiara Renso, Mirco Nanni and Raffaele Perego	TrajParquet: A Trajectory-Oriented Column File Format for Mobility Data Lakes
6187	Prabin Bhandari, Antonios Anastasopoulos and Dieter Pfoser	Are Large Language Models Geospatially KRejectwledgeable?
7040	Yue Hu, Xiaoli Wang, Huimin Ren, Tianfu He, Tan Tang, Huajun He, Chuishi Meng, Boyang Han, Jie Bao, Ying Sun, Gang Li, Quanyi Wang, Peng Yang and Yu Zheng	Epidemic Amplifier Detection: Finding High-Risk Locations in COVID-19 Cases' Location Sequences via Multi-task Learning
7546	Pei-Xuan Li and Hsun-Ping Hsieh	Predicting Fine-grained Dengue Fever Risk Using Multi-View Graph Fusion RNNs with Approximation for Sensor-less Locations
8898	Abdulrahman Salama, Abdeltawab Hendawi, Mohamed Ali, Eyhab Al-Masri, Richard Franklin and Anish Deshpande	SolarVision: A Remote Sensing System to Detect, Query, and Visualize Spatio-temporal Distribution of Solar Panels (Systems Paper)
8918	Namwoon Kim, Hyeyeong Lee and Yoonjin Yoon	A Heterogeneous Attention Network Model for Longitudinal Analysis of SocioecoRejectmic and Racial Inequalities in Urban Regions: Evidence from Chicago, IL
8952	Ren Ozeki, Haruki Yonekura, Aidana Baimbetova, Hamada Rizk and Hirozumi Yamaguchi	One Model Fits All: Cross-Region Taxi-Demand Forecasting
9362	Steve Ludovic GouRejectue Guiffo, Ran Yu and Elena Demidova	SCANNER: A Spatio-temporal Correlation and Neighborhood-based Feature Enrichment for Traffic Prediction
9551	Baixiang Huang, Bryan Hooi and Kai Shu	TAP: A Comprehensive Data Repository for Traffic Accident Prediction in Road Networks
9697	Haowen Lin, Sina Shaham, Yao-Yi Chiang and Cyrus Shahabi	Generating Realistic and Representative Trajectories with Mobility Behavior Clustering
SRC		
	TBA	
GIS Cup		

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