

# Jilin Hu

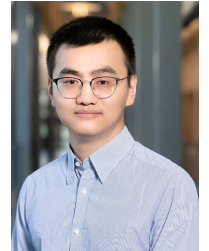
Full Professor, School of Data Science and Engineering, East China Normal University. Research on spatio-temporal data management, traffic analytics, time series, and AI for science.

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🌐 <https://hujilin1229.github.io/>



## Education and Employment

- 2023 – present 📌 **Professor, Zijiang Young Scholar**, School of Data Science and Engineering, East China Normal University.
- 2022 – 2023 📌 **Associate Professor**, Department of Computer Science, Aalborg University, Denmark.
- 2020 – 2022 📌 **Assistant Professor**, Department of Computer Science, Aalborg University, Denmark.
- 2019 – 2020 📌 **Research Scientist**, Inception Institute of Artificial Intelligence, United Arab Emirates.
- 2017 – 2018 📌 **Visiting PhD Student**, Intelligent Transportation Research Group, University of California, Berkeley, USA.
- 2015 – 2019 📌 **PhD Student**, Department of Computer Science, Aalborg University, Denmark.
- 2011 – 2014 📌 **MSc Student**, School of Aeronautics and Astronautics, Shanghai Jiao Tong University, China.
- 2007 – 2011 📌 **BSc Student**, School of Metrology and Testing Engineering, China Jiliang University, China.

## Research Grants

- 2025 – 2028 📌 **National Natural Science Foundation of China**, General Program, Principal Investigator, Research on Multimodal Universal Pretraining for Trajectory Analytics, RMB 500k.
- 2023 – 2026 📌 **National Natural Science Foundation of China**, Excellent Young Scientists Fund (Overseas), Principal Investigator, Spatio-temporal Data Management and Analytics, RMB 1M.
- 2024 – 2026 📌 **Villum Foundation**, Synergy, Co-Principal Investigator, Inverse Design of Materials Using Diffusion Probabilistic Models, DKK 2.99M.
- 2023 – 2026 📌 **East China Normal University Basic Research Funds**, Key Research Initiative, Principal Investigator, Personalized Deposit Rate Pricing for Banking Customers, RMB 500k.

## Honors and Awards

- 2024 📌 **VLDB 2024 Best Paper Award Nomination.**
- 2023 📌 **ACM SIGSPATIAL China Rising Star Award.**
- 2022 📌 **ICDE 2022 Best Paper Award.**
- 📌 **Selected for the National Youth Talent Program.**

## Professional Service

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- 2024 – present     **Executive Committee Member, CCF Large Model Forum.**  
                          **Member, Intelligent and Digital Surgery Committee, Shanghai Medical Association.**
- 2023 – present     **Executive Committee Member, CCF Database Technical Committee.**  
                          **Member, CAAI Intelligent Service Technical Committee.**
- 2022 – present     **Chair, Denmark Chapter, IEEE Computer Society.**  
                          **Executive Committee Member, ACM SIGSPATIAL China Chapter.**

## Publications

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### Journal Articles

- [1] Kai Zhang, Chaoxiang Lan, Yazhang Xu, Zheyang Li, Wenming Tan, Ye Ren, and **Jilin Hu**. "SparseLight: Dynamic gradient-optimized softmax for efficient transformer acceleration". In: *Knowledge-Based Systems* 333 (2026), p. 115050.
- [2] Letian Gong, Shengnan Guo, Yan Lin, Yichen Liu, Erwen Zheng, Yiwei Shuang, Youfang Lin, **Jilin Hu**, and Huaiyu Wan. "STCDM: Spatio-Temporal Contrastive Diffusion Model for Check-In Sequence Generation". In: *IEEE Trans. Knowl. Data Eng.* 37.4 (2025), pp. 2141–2154.
- [3] Yan Lin, **Jilin Hu**, Shengnan Guo, Bin Yang, Christian S. Jensen, Youfang Lin, and Huaiyu Wan. "UVTM: Universal Vehicle Trajectory Modeling with ST Feature Domain Generation". In: *IEEE Trans. Knowl. Data Eng.* (2025).
- [4] Yan Lin, Huaiyu Wan, Shengnan Guo, **Jilin Hu**, Christian S. Jensen, and Youfang Lin. "Pre-Training General Trajectory Embeddings With Maximum Multi-View Entropy Coding". In: *IEEE Trans. Knowl. Data Eng.* 36.12 (2024), pp. 9037–9050.
- [5] Di Qi, **Jilin Hu**, and Jianbing Shen. "Few-Shot Object Detection With Self-Supervising and Cooperative Classifier". In: *IEEE TNLS* 35.4 (2024), pp. 5435–5446.
- [6] Xinle Wu, Xingjian Wu, Bin Yang, Lekui Zhou, Chenjuan Guo, Xiangfei Qiu, **Jilin Hu**, Zhenli Sheng, and Christian S. Jensen. "AutoCTS++: zero-shot joint neural architecture and hyperparameter search for correlated time series forecasting". In: *VLDB J.* 33.5 (2024), pp. 1743–1770.
- [7] Xinle Wu, Xingjian Wu, Bin Yang, Lekui Zhou, Chenjuan Guo, Xiangfei Qiu, **Jilin Hu**, Zhenli Sheng, and Christian S. Jensen. "AutoCTS++: zero-shot joint neural architecture and hyperparameter search for correlated time series forecasting". In: *VLDB J.* 33.5 (2024), pp. 1743–1770.
- [8] Simin Xu, Lingkun Luo, Haichao Hong, **Jilin Hu**, Bin Yang, and Shiqiang Hu. "Multi-granularity attention in attention for person re-identification in aerial images". In: *Vis. Comput.* 40.6 (2024), pp. 4149–4166.
- [9] Haomin Yu, **Jilin Hu**, Xinyuan Zhou, Chenjuan Guo, Bin Yang, and Qingyong Li. "CGF: A Category Guidance Based  $PM_{2.5}$  Sequence Forecasting Training Framework". In: *IEEE TKDE* (2023), pp. 1–14.
- [10] Simin Xu, Lingkun Luo, **Jilin Hu**, Bin Yang, and Shiqiang Hu. "Semantic driven attention network with attribute learning for unsupervised person re-identification". In: *Knowledge-Based Systems* 252 (2022), p. 109354.

- [11] Simin Xu, Lingkun Luo, **Jilin Hu**, Bin Yang, and Shiqiang Hu. "Semantic driven attention network with attribute learning for unsupervised person re-identification". In: *Knowledge-Based Systems* (2022), p. 109354.
- [12] Huanlong Zhang, Jiapeng Zhang, Guohao Nie, **Jilin Hu**, and W.J. (Chris) Zhang. "Residual memory inference network for regression tracking with weighted gradient harmonized loss". In: *Information Sciences* 597 (2022), pp. 105–124.
- [13] Jing Li, Peng Han, Xiangnan Ren, **Jilin Hu**, Lisi Chen, and Shuo Shang. "Sequence Labeling with Meta-Learning". In: *IEEE Transactions on Knowledge and Data Engineering* (2021), pp. 1–1.
- [14] Yong Wang, Xian Wei, Hao Shen, **Jilin Hu**, and Lingkun Luo. "Performance evaluation of low resolution visual tracking for unmanned aerial vehicles". In: *Neural Comput. Appl.* 33.7 (2021), pp. 2229–2248.
- [15] Bolong Zheng, Qi Hu, Lingfeng Ming, **Jilin Hu**, Lu Chen, Kai Zheng, and Christian S. Jensen. "SOUP: Spatial-Temporal Demand Forecasting and Competitive Supply". In: *IEEE TKDE* (2021), pp. 1–1.
- [16] Chenjuan Guo, Bin Yang, **Jilin Hu**, Christian S. Jensen, and Lu Chen. "Context-aware, preference-based vehicle routing". In: *VLDB J.* 29.5 (2020), pp. 1149–1170.
- [17] **Jilin Hu**, Bin Yang, Chenjuan Guo, and Christian S. Jensen. "Risk-aware path selection with time-varying, uncertain travel costs: a time series approach". In: *VLDB J.* 27.2 (2018), pp. 179–200.
- [18] Bin Yang, Jian Dai, Chenjuan Guo, Christian S. Jensen, and **Jilin Hu**. "PACE: a PAtH-CEntric paradigm for stochastic path finding". In: *VLDB J.* 27.2 (2018), pp. 153–178.
- [19] **Jilin Hu**, Bin Yang, Christian S. Jensen, and Yu Ma. "Enabling time-dependent uncertain eco-weights for road networks". In: *GeoInformatica* 21.1 (2017), pp. 57–88.

## Conference Papers

- [1] Yongru Chen, Kai Zhang, Zeliang Zong, Yuchen Lu, Wenming Tan, Ye Ren, and **Jilin Hu**. "One Layer's Trash is Another Layer's Treasure: Adaptive Layer-wise Visual Token Selection in LVLMS". In: *CVPR*. 2026.
- [2] Chenxu Han, Sean Bin Yang, and **Jilin Hu**. "DiffMM: Efficient Method for Accurate Noisy and Sparse Trajectory Map Matching via One Step Diffusion". In: *AAAI*. 2026.
- [3] Zhengyu Li, Xiangfei Qiu, Yuhan Zhu, Xingjian Wu, **Jilin Hu**, Chenjuan Guo, and Bin Yang. "GCGNet: Graph-Consistent Generative Network for Time Series Forecasting with Exogenous Variables". In: *ICLR*. 2026.
- [4] Yan Lin, **Jilin Hu**, Shengnan Guo, Christian S. Jensen, Youfang Lin, and Huaiyu Wan. "DiSGMM: A Method for Time-varying Microscopic Weight Completion on Road Networks". In: *IJCAI*. 2026.
- [5] Xvyuan Liu, Xiangfei Qiu, Hanyin Cheng, Xingjian Wu, Chenjuan Guo, Bin Yang, and **Jilin Hu**. "ASTGI: Adaptive Spatio-Temporal Graph Interactions for Irregular Multivariate Time Series Forecasting". In: *ICLR*. 2026.
- [6] Xvyuan Liu, Xiangfei Qiu, Xingjian Wu, Zhengyu Li, Chenjuan Guo, **Jilin Hu**, and Bin Yang. "Rethinking Irregular Time Series Forecasting: A Simple yet Effective Baseline". In: *AAAI*. 2026.
- [7] Jiahong Lyu, Hongfan Gao, Wangmeng Shen, Qingsong Zhong, and **Jilin Hu**. "PolarFormer: Radial-Angular Latent Modeling for Unconditional Time Series Generation". In: *KDD*. 2026.

- [8] Xiaowei Mao, Huihu Ding, Yan Lin, Tingrui Wu, Shengnan Guo, Dazhuo Qiu, Feiling Fang, **Jilin Hu**, and Huaiyu Wan. "Spatial-Temporal Feedback Diffusion Guidance for Controlled Traffic Imputation". In: *AAAI*. 2026.
- [9] Xiangfei Qiu, Xvyuan Liu, Tianen Shen, Xingjian Wu, Hanyin Cheng, Bin Yang, and **Jilin Hu**. "SEER: Transformer-based Robust Time Series Forecasting via Automated Patch Enhancement and Replacement". In: *ICML*. 2026.
- [10] Xiangfei Qiu, Kangjia Yan, Xvyuan Liu, Xingjian Wu, and **Jilin Hu**. "Bridging Time and Frequency: A Joint Modeling Framework for Irregular Multivariate Time Series Forecasting". In: *ICML*. 2026.
- [11] Xiangfei Qiu, Yuhan Zhu, Zhengyu Li, Xingjian Wu, Bin Yang, and **Jilin Hu**. "DAG: A Dual Correlation Network for Time Series Forecasting with Exogenous Variables". In: *ICML*. 2026.
- [12] Wangmeng Shen, Hongfan Gao, Qingsong Zhong, Dingli Xu, and **Jilin Hu**. "FSDI: Frequency-Shaped Diffusion For Time-Series Imputation". In: *The Web Conference*. 2026.
- [13] Xiangyu Xu, Qingsong Zhong, and **Jilin Hu**. "TimeMar: Multi-Scale Autoregressive Modeling for Unconditional Time Series Generation". In: *The Web Conference*. 2026.
- [14] Sean Bin Yang, Hao Miao, Zongyi Xu, **Jilin Hu**, Xiangmeng Wang, Hua Lu, Bin Yang, and Christian S. Jensen. "DGCPATH: Distribution-Aware Generative Contrastive Framework for Self-supervised Path Representation Learning". In: *IJCAI*. 2026.
- [15] Sean Bin Yang, Ying Sun, **Jilin Hu**, Zongyi Xu, Kristian Torp, Hua Lu, Bin Yang, and Christian S. Jensen. "REFINE: Trajectory Representation Learning via Closed-Loop Transcription". In: *KDD*. 2026.
- [16] Xiaoyun Yu, Li Fan, Xiangfei Qiu, Nanqing Dong, Yonggui Huang, Honggang Qi, Geguang Pu, Wanli Ouyang, Xi Chen, and **Jilin Hu**. "MEMTS: Internalizing Domain Knowledge via Parameterized Memory for Retrieval-Free Domain Adaptation of Time Series Foundation Models". In: *KDD*. 2026.
- [17] Buang Zhang, Tung Kieu, Xiangfei Qiu, Chenjuan Guo, **Jilin Hu**, Aoying Zhou, Christian S. Jensen, and Bin Yang. "An Encode-then-Decompose Approach to Unsupervised Time Series Anomaly Detection on Contaminated Training Data". In: *ICDE*. 2026.
- [18] Qingsong Zhong, Haomin Yu, Yan Lin, Wangmeng Shen, Long Zeng, and **Jilin Hu**. "SculptDrug: A Spatial Condition-Aware Bayesian Flow Model for Structure-based Drug Design". In: *AAAI*. 2026.
- [19] Zeliang Zong, Kai Zhang, Yarong Wang, Wenming Tan, Ye Ren, and **Jilin Hu**. "Less Token, More Signal: MoE Expert Pruning via Critical Token Selection". In: *ICML*. 2026.
- [20] Hongfan Gao, Wangmeng Shen, Xiangfei Qiu, Ronghui Xu, Bin Yang, and **Jilin Hu**. "SSD-TS: Exploring the potential of linear state space models for diffusion models in time series imputation". In: *KDD*. 2025.
- [21] Zhe Li, Xiangfei Qiu, Peng Chen, Yihang Wang, Hanyin Cheng, Yang Shu, **Jilin Hu**, Chenjuan Guo, Aoying Zhou, Christian S. Jensen, and Bin Yang. "FM4TS-Bench: A Comprehensive and Unified Benchmark of Foundation Models for Time Series Forecasting". In: *KDD*. 2025.
- [22] Xiangfei Qiu, Zhe Li, Wanghui Qiu, Shiyan Hu, Lekui Zhou, Xingjian Wu, Zhengyu Li, Chenjuan Guo, Aoying Zhou, Zhenli Sheng, **Jilin Hu**, Christian S. Jensen, and Bin Yang. "TAB: Unified Benchmarking of Time Series Anomaly Detection Methods". In: *PVLDB*. 2025.
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- [24] Xiangfei Qiu, Xingjian Wu, Yan Lin, Chenjuan Guo, **Jilin Hu**, and Bin Yang. "DUET: Dual Clustering Enhanced Multivariate Time Series Forecasting". In: *KDD*. Ed. by Yizhou Sun, Flavio Chierichetti, Hady W. Lauw, Claudia Perlich, Wee Hyong Tok, and Andrew Tomkins. ACM, 2025, pp. 1185–1196.
- [25] Haichen Wang, Liu Yang, Xinyuan Zhang, Haomin Yu, Ming Li, and **Jilin Hu**. "ADFormer: Aggregation Differential Transformer for Passenger Demand Forecasting". In: *IJCAI*. 2025.
- [26] Tonglong Wei, Yan Lin, Youfang Lin, Shengnan Guo, **Jilin Hu**, Haitao Yuan, Gao Cong, and Huaiyu Wan. "PLMTrajRec: A Scalable and Generalizable Trajectory Recovery Method with Pre-trained Language Models". In: *NeurIPS*. 2025.
- [27] Tonglong Wei, Yan Lin, Zeyu Zhou, Haomin Wen, **Jilin Hu**, Shengnan Guo, Youfang Lin, Gao Cong, and Huaiyu Wan. "TransferTraj: A Vehicle Trajectory Learning Model for Region and Task Transferability". In: *NeurIPS*. 2025.
- [28] Yongfu Wei, Yan Lin, Hongfan Gao, Ronghui Xu, Sean Bin Yang, and **Jilin Hu**. "Path-LLM: A Multi-Modal Path Representation Learning by Aligning and Fusing with Large Language Models". In: *WWW*. Ed. by Guodong Long, Michale Blumstein, Yi Chang, Liane Lewin-Eytan, Zi Helen Huang, and Elad Yom-Tov. ACM, 2025, pp. 2289–2298.
- [29] Wenyu Wu, Jiali Mao, Jiafan Liu, Yixiao Tong, Lisheng Zhao, Shaosheng Cao, **Jilin Hu**, Aoying Zhou, and Lin Zhou. "CDMap: Complementarity and Disparity-aware Map Inference Quality Enhancement". In: *ICDE*. 2025.
- [30] Xingjian Wu, Xiangfei Qiu, Hanyin Cheng, Zhengyu Li, **Jilin Hu**, Chenjuan Guo, and Bin Yang. "Enhancing Time Series Forecasting through Selective Representation Spaces: A Patch Perspective". In: *NeurIPS*. 2025.
- [31] Xingjian Wu, Xiangfei Qiu, Hongfan Gao, **Jilin Hu**, Chenjuan Guo, and Bin Yang. " $K^2$ VAE: A Koopman-Kalman Enhanced Variational AutoEncoder for Probabilistic Time Series Forecasting". In: *ICML*. 2025.
- [32] Ronghui Xu, Hanyin Cheng, Chenjuan Guo, Hongfan Gao, **Jilin Hu**, Sean Bin Yang, and Bin Yang. "MM-Path: Multi-modal, Multi-granularity Path Representation Learning". In: *KDD*. Ed. by Yizhou Sun, Flavio Chierichetti, Hady W. Lauw, Claudia Perlich, Wee Hyong Tok, and Andrew Tomkins. ACM, 2025, pp. 1703–1714.
- [33] Yi Zhang, Kai Zhang, Zheyang Li, Wenming Tan, Ye Ren, and **Jilin Hu**. "Beyond Dynamic Quantization: An Efficient Static Hierarchical Mix-precision Framework for Near-Lossless LLM Compression". In: *EMNLP Industry*. 2025.
- [34] Zeyu Zhou, Yan Lin, Haomin Wen, Shengnan Guo, **Jilin Hu**, Youfang Lin, and Huaiyu Wan. "TrajCogn: Leveraging LLMs for Cognizing Movement Patterns and Travel Purposes from Trajectories". In: *IJCAI*. 2025.
- [35] Zeliang Zong, Kai Zhang, Zheyang Li, Wenming Tan, Ye Ren, yiyang zhai, and **Jilin Hu**. " $1+1>2$ : A Synergistic Sparse and Low-Rank Compression Method for Large Language Models". In: *EMNLP Findings*. 2025.
- [36] Christian S. Jensen, Bin Yang, Chenjuan Guo, **Jilin Hu**, and Kristian Torp. "Routing with Massive Trajectory Data". In: *ICDE*. 2024, pp. 5542–5547.
- [37] Zhe Li, Ronghui Xu, **Jilin Hu**, Zhong Peng, Xi Lu, Chenjuan Guo, and Bin Yang. "Ocean Significant Wave Height Estimation with Spatio-temporally Aware Large Language Models". In: *Proceedings of the 33rd ACM International Conference on Information and Knowledge Management*. Ed. by Edoardo Serra and Francesca Spezzano. 2024, pp. 3892–3896.

- [38] Yan Lin, Huaiyu Wan, **Jilin Hu**, Shengnan Guo, Bin Yang, Youfang Lin, and Christian S. Jensen. "Origin-Destination Travel Time Oracle for Map-based Services". In: *SIGMOD*. 2024.
- [39] Minbo Ma, **Jilin Hu**, Christian S. Jensen, Fei Teng, Peng Han, Zhiqiang Xu, and Tianrui Li. "Learning Time-Aware Graph Structures for Spatially Correlated Time Series Forecasting". In: *ICDE*. 2024, pp. 4435–4448.
- [40] Xiangfei Qiu, **Jilin Hu**, Lekui Zhou, Xingjian Wu, Junyang Du, Buang Zhang, Chenjuan Guo, Aoying Zhou, Christian S. Jensen, Zhenli Sheng, and Bin Yang. "TFB: Towards Comprehensive and Fair Benchmarking of Time Series Forecasting Methods". In: *PVLDB*. Vol. 17. 9. 2024, pp. 2363–2377.
- [41] Haomin Yu, Yanru Song, **Jilin Hu**, Chenjuan Guo, Bin Yang, and Christian S. Jensen. "A Crystal Knowledge-Enhanced Pre-training Framework for Crystal Property Estimation". In: *ECML PKDD 2024, Vilnius, Lithuania*. Ed. by Albert Bifet, Tomas Krilavicius, Ioanna Miliou, and Slawomir Nowaczyk. Vol. 14950. 2024, pp. 231–246.
- [42] Sean Bin Yang, **Jilin Hu**, Chenjuan Guo, Bin Yang, and Christian S. Jensen. "LightPath: Lightweight and Scalable Path Representation Learning". In: *KDD*. 2023, pp. 2999–3010.
- [43] Tianyi Li, Lu Chen, Christian S. Jensen, Torben Bach Pedersen, and **Jilin Hu**. "Evolutionary Clustering of Streaming Trajectories". In: *ICDE*. 2022.
- [44] Frederik Mathiesen, Bin Yang, and **Jilin Hu**. "Hyperverlet: A Symplectic Hypersolver for Hamiltonian Systems". In: *AAAI*. 2022.
- [45] Sean Bin Yang, Chenjuan Guo, **Jilin Hu**, Bin Yang, Jian Tang, and Christian S. Jensen. "Weakly-supervised Temporal Path Representation Learning with Contrastive Curriculum Learning - Extended Version". In: *ICDE*. 2022.
- [46] Miao Zhang, Steven Su, Shirui Pan, Xiaojun Chang, Bin Yang, **Jilin Hu**, and Gholamreza Haffari. "BaLeNAS: Differentiable Architecture Search via the Bayesian Learning Rule". In: *CVPR*. Vol. abs/2111.13204. 2022.
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- [48] **Jilin Hu**, Bin Yang, Chenjuan Guo, Christian S. Jensen, and Hui Xiong. "Stochastic Origin-Destination Matrix Forecasting Using Dual-Stage Graph Convolutional, Recurrent Neural Networks". In: *ICDE*. IEEE, 2020, pp. 1417–1428.
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- [50] Chenjuan Guo, Bin Yang, **Jilin Hu**, and Christian S. Jensen. "Learning to Route with Sparse Trajectory Sets". In: *ICDE*. 2018, pp. 1073–1084.
- [51] Robert Waury, **Jilin Hu**, Bin Yang, and Christian S. Jensen. "Assessing the Accuracy Benefits of On-the-Fly Trajectory Selection in Fine-Grained Travel-Time Estimation". In: *MDM*. 2017, pp. 240–245.
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