

# Curriculum Vitae - Yan Lin

**Name:** Yan Lin; **Gender:** Male; **Birth Date:** 08/04/1998

**E-mail:** [lyan@cs.aau.dk](mailto:lyan@cs.aau.dk); **Tel.:** (+45) 9186-1833

**Institutions:** Department of Computer Science, Aalborg University

**Address:** Selma Lagerlöfs Vej 300, 9000 Aalborg, Denmark

I am currently a postdoctoral researcher in the Department of Computer Science at Aalborg University. I received my PhD and Bachelor's degrees from Beijing Jiaotong University, China. I have published 11 papers in reputable journals and well-established international conferences. Moreover, I have led or played a significant role in 8 scientific research projects.

---

## Professional Experience

### **Aalborg University, Denmark (Postdoc)**

Department of Computer Science (01/06/2024-31/05/2025)

## Education Background

### **Beijing Jiaotong University, China (PhD)**

School of Computer and Information Technology (01/09/2019-29/03/2024)

- Major: Computer Science and Technology

- Supervisor: Prof. Huaiyu Wan

### **Aalborg University, Denmark (Visiting PhD Student)**

Department of Computer Science (08/09/2022-29/09/2023)

- Major: Computer Science and Technology

- Supervisor: Prof. Bin Yang, Prof. Jilin Hu

### **Beijing Jiaotong University, China (Bachelor)**

School of Computer and Information Technology (01/09/2015-01/06/2019)

- Major: Computer Science and Technology

## Research Field

Data mining, deep learning, and representation learning, especially on spatial-temporal data and traffic data.

## Publications

- [1] **Yan Lin**, Huaiyu Wan, et al. Pre-training Context and Time Aware Location Embeddings from Spatial-Temporal Trajectories for User Next Location Prediction. The 35th AAAI Conference on Artificial Intelligence (AAAI), 2021, 35(5), 4241-4248.
- [2] Huaiyu Wan, **Yan Lin**, et al. Pre-training time-aware location embeddings from spatial-temporal trajectories. IEEE Transactions on Knowledge and Data Engineering (TKDE), 2022, 34 (11): 5510-5523. (Huaiyu Wan is my PhD supervisor)
- [3] **Yan Lin**, Huaiyu Wan, et al. Origin-Destination Travel Time Oracle for Map-based Services. The 2024 International Conference on Management of Data (SIGMOD), 2024, 1(3), Article No. 217.
- [4] **Yan Lin**, Huaiyu Wan, et al. Pre-training General Trajectory Embeddings with Maximum Multi-view Entropy Coding. IEEE Transactions on Knowledge and Data Engineering (TKDE), DOI: 10.1109/TKDE.2023.3347513, 2023.
- [5] Letian Gong, Youfang Lin, Shengnan Guo, **Yan Lin**, et al. Contrastive Pre-training with Adversarial Perturbations for Check-In Sequence Representation Learning. The 37th AAAI Conference on Artificial Intelligence (AAAI), 2023, 37(4), 4276-4283.
- [6] Yuxin Jia, Youfang Lin, Xinyan Hao, **Yan Lin**, et al. WITRAN: Water-wave Information

- Transmission and Recurrent Acceleration Network for Long-range Time Series Forecasting. The 37th Conference on Neural Information Processing Systems (NeurIPS), URL: <https://openreview.net/forum?id=y08bkEtNBK>, 2023.
- [7] Changxia Gao, Ning Zhang, Youru Li, **Yan Lin**, Huaiyu Wan. Adversarial self-attentive time-variant neural networks for multi-step time series forecasting. *Expert Systems with Applications (ESWA)*, 2023, 231: 120722.
- [8] Changxia Gao, Ning Zhang, Youru Li, **Yan Lin**, Huaiyu Wan. Multi-scale adaptive attention-based time-variant neural networks for multi-step time series forecasting. *Applied Intelligence (APIN)*, 2023, 53: 28974–28993.
- [9] Tonglong Wei, Youfang Lin, Shengnan Guo, **Yan Lin**, et al. Inductive and Adaptive Graph Convolution Networks Equipped with Constraint Task for Spatial-Temporal Traffic Data Kriging. *Knowledge-Based Systems (KBS)*, 2024, 284: 111325.
- [10] Letian Gong, Huaiyu Wan, Shengnan Guo, Xiucheng Li, **Yan Lin**, et al. Spatial-Temporal Cross-View Contrastive Pre-Training for Check-in Sequence Representation Learning. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, DOI: 10.1109/TKDE.2024.3434565, 2024.
- [11] Tonglong Wei, Youfang Lin, **Yan Lin**, et al. Micro-Macro Spatial-Temporal Graph-Based Encoder-Decoder for Map-Constrained Trajectory Recovery. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, DOI: 10.1109/TKDE.2024.3396158, 2024.

## Selected Research Experience and Projects

### \* Principal Investigator

- The Fundamental Research Funds for the Central Universities of China: *Research on "Prediction of User Travel Destination and Travel Time Based on Trajectory Representation Learning,"* No. 2021YJS030 (05/2021-05/2023)
  - This project applies representation learning to trajectory data to transform original features into high-level information, improving the performance of downstream tasks such as travel time and destination prediction.
  - **My major contributions include:** 1) I was the leader of this project and independently wrote and applied for the project. I also mentored two Master's students (Wenchuang Peng and Yuan Wei). 2) I developed a trajectory representation learning method and a travel time estimation model to enhance the accuracy of traffic-related tasks. The relevant research results are published in [3] and [4].
- Personal Interest Project: *Development of "OverleafCopilot - Empowering Academic Writing in Overleaf with Large Language Models,"* (10/2023-Present)
  - This project aims to develop a Browser extension to seamlessly integrate Large Language Models (such as ChatGPT) into the popular online academic writing platform, Overleaf.
  - **My major contributions include:** 1) Independently developed the database and backend supporting the core functionalities of the extension. 2) Independently implemented the product homepage (overleafcopilot.com). 3) Lead the development of the extension using JavaScript and HTML.
  - The extension currently has 3,000+ active users from 70+ institutes around the world. (Source: Chrome Web Store)

### \* Participant

- The Villum Foundation: *Research on "Inverse Design of Materials Using Diffusion Probabilistic Models,"* No. 57373 (04/2024-03/2026)
  - This project focuses on developing diffusion probabilistic models to first understand the relationship between chemistry/structure and material properties, then enable the inverse design of new materials with specific properties. This project currently supports my postdoctoral research position.
  - **My major contributions include:** 1) I pioneered the application of diffusion models for material generation (published in [3]), which inspired this project. 2) I am currently designing and

implementing diffusion models specifically for glass structures to facilitate the inverse design of novel materials.

- The National Natural Science Foundation of China: *Research on "Pre-training Representation Learning Methods of Spatial-temporal Trajectory Data for Traffic Prediction,"* No. 62272033 (01/2023-12/2025)
  - This project aims to propose pre-training representation learning methods for spatial-temporal trajectory data, modeling multiple features to improve traffic prediction tasks. It demonstrates how trajectory representation learning can enhance traffic data mining.
  - **My major contributions include:** 1) I conducted pioneering research on pre-training techniques for spatial-temporal data, with relevant results published in [1] and [2]. 2) I originated the concept for this project and wrote the proposal. 3) I developed a pre-training representation learning method for trajectory data to improve traffic prediction accuracy, with findings published in [4]. 4) I independently completed the development of the project's data mining platform (<http://demo.insis.com.cn:8200/>), which serves as a demonstration tool.
- The National Natural Science Foundation of China: *Research on "Spatial-temporal Trajectory Generation and Representation Learning Methods for Sparsity Problems,"* No. 62372031 (01/2024-12/2026)
  - This project explores how to generate high-quality spatial-temporal trajectory data and corresponding representations to address sparsity-related issues, thereby supporting a variety of downstream tasks.
  - **My major contributions include:** 1) I conceived the core idea for this project, leading the proposal writing and contributing substantially to its content. 2) I developed a representation learning approach to address label sparsity in trajectory mining, with results published in [4]. 3) I mentored two PhD students (Tonglong Wei and Letian Gong) in our research group, collaborating on the design of methods for representation learning, imputation, and generation of human and vehicle trajectories. The relevant research results are published in [5], [10], and [11].

## Supervising and Mentoring Activities

- Mentoring two Master's students, i.e., Wenchuang Peng and Yuan Wei (05/2021-05/2023), in the project of "Prediction of User Travel Destination and Travel Time Based on Trajectory Representation Learning."
- Mentoring two PhD students, i.e., Tonglong Wei and Letian Gong (01/2024-12/2026), in the project of "Spatial-temporal Trajectory Generation and Representation Learning Methods for Sparsity Problems."

## Professional Services

- ACM member
- Reviewer for several journals, including ACM Transactions on Intelligent Systems and Technology (TIST), Springer Machine Learning, and IEEE Transactions on Vehicular Technology (TVT).
- A member of program committees of several international conferences, including International Conference on Learning Representations (ICLR), ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), AAAI Conference on Artificial Intelligence (AAAI), IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR).

## Presentations

- **ACM SIGKDD Conference on Knowledge Discovery and Data Mining**, Barcelona, Spain, 26/08/2024  
"PLM4Traj: Leveraging Pre-trained Language Models for Cognizing Movement Patterns and Travel Purposes from Trajectories," Workshop presentation.
- **International Conference on Management of Data**, Santiago, Chile, 12/06/2024

- "Origin-Destination Travel Time Oracle for Map-based Services," Paper oral.
- **International Conference on Spatial Data and Intelligence**, Nanjing, China, 25/04/2024  
"Self-supervised Learning of Spatial-temporal Trajectories," Tutorial.
  - **AAAI Conference on Artificial Intelligence**, Virtual, 08/02/2021  
"Pre-training Context and Time Aware Location Embeddings from Spatial-Temporal Trajectories for User Next Location Prediction," Paper oral.

## Prizes and Awards

- Tencent Rhino-Bird Elite Talent 2022 (Top 10% among candidates)
- Granted by the State Scholarship Fund of China Scholarship Council 2022 (Top 5% in China)
- First-class Academic Scholarship 2020, 2021, 2023 (Top 10% in the department)
- National Scholarship of China 2019 (Top 0.2% in China)

## Skills

- **Computer Science:** Skilled in computer science theory and its applications, with a strong focus on machine learning theory and data mining techniques. Possessing extensive experience in designing and implementing machine learning and deep learning models.
- **Programming Skills:** Proficient in Python, JavaScript, and HTML, with additional experience in C++ and Java.