Xueqin (Ned) Chen

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RESEARCH INTEREST

My research vision is to develop *AI-based solutions* to address real-world challenges across diverse domains, including **social computing**, **urban computing**, and **environmental science**. Specifically,

- **AI + Social Computing**, with a specific focus on understanding the diffusion trends of online information (information diffusion prediction) and assessing its credibility (rumor/fake news detection). Recently, I have also been interested in the predictability of economic behavior that influences human life (stock prediction).
- **AI + Urban Computing**, which focuses on deploying AI in city development. I have focused on transportation management, including traffic (vehicle and metro) flow prediction, as well as analyzing human mobility behavior through data from user online check-ins. Additionally, I have worked on extracting meaningful information based on the interactions (e.g., nearby and located in) of urban entities (e.g., shopping centers, restaurants, and roads) within geographical areas (urban region modeling and prediction).
- **AI + Environmental Science**, an interdisciplinary research field that integrates AI, environmental science, and physics, is critically important for addressing diverse challenges in Earth's environment. Specifically, this research topic aims to understand environmental dynamic changes and conduct simulations guided by underlying physical laws, i.e., Navier-Stokes equations. My primary focus within this area is solving problems related to water management. In the beginning, I was dedicated to developing neural operator-based methods to combat uncertainties (i.e., infilling missing values) in existing image-based velocimetry techniques (PIV). Currently, I am specifically focused on developing a neural optical flow-based approach for river surface velocimetry.

In a nutshell, I'm interested in extracting meaningful features from multi-modal data, including text, images, dynamic networks, videos, and time-series data, for various real-world downstream tasks. In addition, in the era of large language models (LLMs), I'm also particularly intrigued by the potential of leveraging LLMs and the training strategies behind them, such as retrieval augmented generation (RAG), in-context learning, and mixture-of-experts (MoE), to enhance existing applications.

WORKING EXPERIENCE

- **Postdoctoral Researcher, Delft University of Technology** *15, May 2022 - 15, May 2025*
  AidroLab, Civil Engineering and Geosciences and Electrical Engineering Delft, NL
  Advisor: Dr. Riccardo Taormina
  ◦ Developed AI-based application in water management, with a focus on river surface velocimetry

EDUCATION

- **Ph.D. (Joint Ph.D. programme), Leiden University** *16, Oct. 2019 - 25, Oct. 2022*
  Leiden Institute of Advanced Computer Science Leiden, NL
  ◦ *Supervisor: Prof. Marcello Bonsangue and Prof. Fengli Zhang. Co-supervisor: Prof. Fan Zhou*
  ◦ *Thesis:* Information diffusion analysis in online social networks based on deep representation learning
- **Ph.D., University of Electronic Science and Technology of China** *1, Sept. 2017 - 1, Dec. 2022*
  School of Information and Software Engineering Chengdu, CN
  ◦ *Supervisor: Prof. Fengli Zhang. Co-supervisor: Prof. Fan Zhou*
- **M.Sc, University of Electronic Science and Technology of China** *1, Sept. 2015 - 21, May. 2017*
  School of Information and Software Engineering Chengdu, CN
  ◦ *Supervisor: Prof. Fengli Zhang*
- **B.E., Dalian Neusoft University of Information** *1, Sept. 2011 - 1, June. 2015*
  Computer Science and Technology Dalian, CN

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, U=UNDER REVIEW, P=IN PREPARATION, #=CORRESPONDING, *=SUPERVISION

1. AI + Social Computing

[C.1] **Xueqin Chen**, Fan Zhou, Kunpeng Zhang, Goce Trajcevski, Ting Zhong, and Fengli Zhang. (2019). **Information Diffusion Prediction via Recurrent Cascades Convolution**. In *ICDE'19* [Core A*]. DOI: 10.1109/ICDE.2019.00074. Topic: **Information Diffusion**

[C.2] **Xueqin Chen**, Kunpeng Zhang, Fan Zhou, Goce Trajcevski, Ting Zhong, and Fengli Zhang. (2019). **Information Cascades Modeling via Deep Multi-Task Learning**. In *SIGIR'19* [Core A*], pp. 885 - 888. DOI: 10.1145/3331184.3331288. Topic: **Information Diffusion**

[C.3] Ting Zhong, Jienan Zhang, Zhangtao Cheng, Fan Zhou, and **Xueqin Chen***. (2024). **Information Diffusion Prediction via Cascade-Retrieved In-context Learning**. In *SIGIR'24* [Core A*], pp. 2472-2476. DOI: 10.1145/3626772.3657909. Topic: **Information Diffusion**

[C.4] Li Huang, Yanzhe Xie, Qiang Gao, Kunpeng Zhang, Guisong Liu, and **Xueqin Chen**. (2024). **Progressive Dependency Representation Learning for Stock Ranking in Uncertain Risk Contrasting**. In *KDD'25* [Core A*], *Accepted*. Topic: **Stock Ranking**

[J.1] **Xueqin Chen**, Fan Zhou, Fengli Zhang, and Marcello Bonsangue. (2021). **Modeling Microscopic and Macroscopic Information Diffusion for Rumor Detection**. *International Journal of Intelligent Systems*. DOI: 10.1002/int.22518. Topic: **Misinformation**

[J.2] **Xueqin Chen**, Fan Zhou, Fengli Zhang, and Marcello Bonsangue. (2021). **Catch Me If You Can: A Participant-Level Rumor Detection Framework via Fine-grained User Representation Learning**. *Information Processing and Management*, DOI: 10.1016/j.ipm.2021.102678. Topic: **Misinformation**

[J.3] **Xueqin Chen**, Fengli Zhang, Fan Zhou, and Marcello Bonsangue. (2022). **Multi-Scale Graph Capsule with Influence Attention for Information Cascade Prediction**. *International Journal of Intelligent Systems*. DOI: 10.1002/int.22786. Topic: **Information Diffusion**

[J.4] **Xueqin Chen**, Fan Zhou, Goce Trajcevski, and Marcello Bonsangue. (2022). **Multi-view Learning with Distinguishable Feature Fusion for Rumor Detection**. *Knowledge-Based Systems*. DOI: 10.1016/j.knosys.2021.108085. Topic: **Misinformation**

[J.5] Nan Liu, Fengli Zhang, Qiang Gao, and **Xueqin Chen**$^{*\#}$. (2024). **Contrastive Learning with Edge-wise Augmentation for Rumor Detection**. *International Journal of Intelligent Systems*. DOI: 10.1155/2024/3858526. Topic: **Misinformation**

[U.1] Xin Jing, Yichen Jing, Yuhuan Lu, Bangchao Deng, **Xueqin Chen***, and Dingqi Yang. (2024). **CasFT: Future Trend Modeling for Information Popularity Prediction with Dynamic Cues-Driven Diffusion Models**. *Submitted to a conference*. Topic: **Information Diffusion**

[U.2] Li Huang, Haowen Liu, Qiang Gao, Jiajing Yu, Guisong Liu, and **Xueqin Chen**. (2024). **Adversity-aware Few-shot Named Entity Recognition via Augmentation Learning**. *Submitted to a conference*. . Topic: **Name Entity Recognition**

[U.3] **Xueqin Chen**, Xiaoyu Huang, Qiang Gao, Li Huang, and Guisong Liu. (2024). **Enhancing Text-centric Fake News Detection via External-Knowledge Distillation from LLMs**. *Submitted to Neural Networks*. Topic: **Misinformation**

[U.4] Li Huang, Yanzhe Xie, Zizheng Wang, Qiang Gao, Haolun Ding, and **Xueqin Chen**. (2024). **Understanding Interactive Stock Dynamics via Sensitivity-aware Dependency Learning**. *Submitted to a conference*. Topic: **Stock Ranking**

[U.5] Qiang Gao, Yutao Xiao, Chaoran Liu, Li Huang, Kunpeng Zhang, and **Xueqin Chen**. (2024). **Open-World Financial Fraud Detection via Progressive Dependency Learning**. *Submitted to a conference*. Topic: **Fraud Detection**

[U.6] **Xueqin Chen**, Xiaoyu Huang, Qiang Gao, Li Huang, Jiajing Yu, and Guisong Liu. (2024). **Birds of a Feather: Enhancing Multimodal Fake News Detection via Multi-Element Retrieval**. *Submitted to a conference*. Topic: **Misinformation**

[P.1] Ting Zhong, Wenxue Ye, Zhangtao Cheng, Fan Zhou, Kunpeng Zhang, and **Xueqin Chen***. (2024). **DucDiff: Dual-consistent Diffusion for Uncertainty-aware Information Diffusion Prediction**. *In Submitting to a Conference*. Topic: **Information Diffusion**

2. AI + Urban Computing

[C.1] Qiang Gao, Xiaolong Song, Li Huang, Goce Trajcevski, Fan Zhou, and **Xueqin Chen***. (2024). **Enhancing Fine-Grained Urban Flow Inference via Incremental Neural Operator**. In *IJCAI* [Core A*], pp. 5826-5834. DOI: 10.24963/ijcai.2024/644. Topic: **Urban Flow**

[C.2] Qiang Gao, Zizheng Wang, Li Huang, Goce Trajcevski, Kunpeng Zhang, and **Xueqin Chen***. (2024). **Enhancing Dependency Dynamics in Traffic Flow Forecasting via Graph Risk Bootstrap**. In *SIGSPATIAL* [Core A], pp. 147-159. DOI: 10.1145/3678717.3691237. Topic: **Urban Flow**

[U.1] Qiang Gao, Letian Ning, Li Huang, Chaoran Liu, Fan Zhou, and **Xueqin Chen**$^{*\#}$. (2024). **Aligning Authentic Location Shares with Mobility Information Bottleneck**. *Submitted to IEEE Transactions on Intelligent Transportation Systems*. Topic: **Human Mobility**

[U.2] Qiang Gao, Zizheng Wang, Li Huang, Goce Trajcevski, Guisong Liu, and **Xueqin Chen***. (2024). **Responsive Dynamic Graph Disentanglement for Metro Flow Forecasting**. *Submitted to a conference*. Topic: **Urban Flow**

[U.3] Qiang Gao, Xiaolong Song, Yujie Wu, Li Huang, Goce Trajcevski, and **Xueqin Chen**$^{*\#}$. (2024). **Enhancing Urban Region Embedding via Risk-aware Cross-view Information Bottleneck**. *Submitted to a conference*. Topic: **Urban Region**

3. AI + Environmental Science

[P.1] **Xueqin Chen**, Hessel Winsemius, and Riccardo Taormina. (2024). **Graph-enhanced Neural Operator for Missing Velocities Infilling in River Surface Velocimetry**. *In submitting to Water Research*. Topic: **Surface Velocity**

PROJECTS

- **Research on Fault Diagnosis of Cloud Computing Resource Pool** *2015*
  Southern Power Grid Yunnan Power Grid
- **Sichuan transportation big data platform** *2017*
  Sichuan Gaolu Traffic Information Engineering Co., Ltd. *Grant No. H04W170570*
- **A Comprehensive Review of Health and Medical Big Data Research** *2017*
  National Information Security Center *Grant No. YJYS-XXYJ-201701*
- **Research on the Construction and Application of Cross-Platform Chinese Knowledge Graph Based on Artificial Intelligence** *2018*
  Sichuan Provincial Department of Science and Technology *Grant No. 2018GZ0087*
- **Research and Demonstration Application of Multi-scale Situational Awareness and Event Evolution for Security in the Xinjiang Region** *2019*
  Regional Innovation Cooperation in Sichuan Province *Grant No. 2020YFQ0018*
- **Security Requirements for Digital Rights Management Based on Blockchain** *2019*
  National Information Security Center *Grant No. 2019R015*
- **Research on Interpretability in Graph Learning** *2020*
  National Natural Science Foundation of China *Grant No. 62072077*

TEACHING

- **CEGM1000: Modelling, Uncertainty and Data for Engineers** *Fall 2022 & Fall 2023*
  Workshop Q&A *TA*
- **CEGM2003: Data Science and Artificial Intelligence for Engineers** *Fall 2023*
  Course materials design & online recording – Advanced Decision Tree *TA*

REVIEWERS FOR JOURNALS AND CONFERNCES

- **Coferences:** ICLR' 25 | KDD' 19/20/23/24 | IJCAI' 24 | DSAI' 23/24 | SDM'24 | SIGIR' 20 | ACL' 20 | BigData' 20/22
- **Journals:** Expert Systems With Applications | IEEE Transactions on Knowledge and Data Engineering | Information Sciences | International Journal of Intelligent Systems | Journal of Circuits, Systems, and Computers | Information Processing and Management | IEEE Transactions on Circuits and Systems for Video Technology | Scientific Reports | Knowledge-Based Systems | IEEE Transactions on Intelligent Transportation Systems

MENTORING

- **PhD Candidate**
  - *Nan Liu (UESTC, fake news detection, co-advisor with Prof. Fengli Zhang, from 2022)*
  - *Zhangtao Cheng (UESTC, information cascades, co-advisor with Prof. Fan Zhou, from 2024)*
  - *Xin Jing (UM, information cascades, co-advisor with Dr. Dingqi Yang, from 2024)*
  - *Yujie Li (Leiden Uni, continual learning, co-advisor with Prof. Marcello Bonsangue, from 2024)*
- **M.Sc student**
  - *Jienan Zhang (UESTC, M.Sc student, information cascades, co-advisor with Prof. Fan Zhou, from 2024)*
  - *Wenxue Ye (UESTC, M.Sc student, information cascades, co-advisor with Prof. Fan Zhou, from 2024)*
  - *Xiaolong Song (SWUFE, M.Sc student, urban computing, co-advisor with Dr. Qiang Tao, from 2024)*
  - *Zizheng Wang (SWUFE, M.Sc student, spatial-temporal data mining, co-advisor with Dr. Qiang Tao, from 2024)*
  - *Xiaoyu Huang (SWUFE, M.Sc student, fake news detection, co-advisor with Dr. Qiang Tao, from 2024)*
  - *Letian Ning (SWUFE, M.Sc student, traffic flow prediction, co-advisor with Dr. Qiang Tao, from 2024)*
  - *Max Helmich (TU Delft, M.Sc student, Thesis: image-based velocimetry, co-advisor with Dr. Riccardo Taormina, 2023)*

Honors and Awards

- **Outstanding graduates of general higher education institutions in Liaoning Province** *2015*
- **ICDE Student Travel Award** *2019*
- **One of the best tech-idea in 2023 (KIJK magazine)*** *2023*
  PhD work – Universiteit Leiden: algoritme tegen nepnieuws *The final rank is 7th*