

Aoran Wang

+49-15255903906 | aoran.wang@uni.lu | [LinkedIn](#) | [GitHub](#)

University of Luxembourg, 6 Avenue de la Fonte, L-4364 Esch-sur-Alzette, Luxembourg

EDUCATION

University of Luxembourg

PhD in Computer Science (Focus: Machine Learning for Dynamical Systems)

Esch-sur-Alzette, Luxembourg

Dec. 2020 – Nov. 2024 (Expected)

Karlsruhe Institute of Technology

Master of Science (Major: Autonomous Driving); GPA: 3.7/4.0

Karlsruhe, Germany

Oct. 2015 – Sep. 2019

Tongji University

Bachelor of Engineering (Major: Structural Mechanics); GPA: 3.7/4.0

Shanghai, China

Sep. 2011 – Jun. 2015

SKILLS

Languages: Python (advanced), C/C++ (advanced), HTML/CSS, MATLAB, Visual Basic, LaTeX.

Developer Tools: Linux, Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, Slurm.

Libraries: PyTorch, TensorFlow, Scikit-Learn, Jupyter, pandas, NumPy, Matplotlib, CUDA.

Techniques: Convolutional Neural Networks, Graph Neural Networks, Variational Autoencoder, Bi-level Optimization, Active Learning, AI4Science, Dynamical Systems, Generative AI, Reservoir Computing, Graph Theory.

EXPERIENCE

University of Luxembourg

Doctoral Researcher (PhD Student)

Esch-sur-Alzette, Luxembourg

Dec. 2020 – Present

- Explored structural inference in dynamical systems through deep learning, contributing to advancements in modeling complex systems.
- Created StructInfer, a pioneering open benchmark for evaluating structural inference methods across disciplines, ensuring objectivity and reproducibility.
- Published research at premier AI conferences including NeurIPS 2022, ICML 2023, and ICLR 2024, and contributed as a reviewer at leading AI venues.

Squirrel AI

Research Intern

Hybrid: Shanghai and remote

Feb. 2024 – Present

- Developed models for recommendation systems using spatio-temporal graphs, enhancing them with integrated database solutions.
- Innovated techniques for addressing missing data issues by leveraging spatio-temporal similarities.
- Launched the LLM4EDUKG benchmark, assessing the reasoning capabilities of pre-trained large language models on domain-specific knowledge graphs.

Karlsruhe Institute of Technology

Student Assistant

Karlsruhe, Germany

Dec. 2019 – Mar. 2020

- Engineered an innovative visual localization technique using Graph Neural Networks and OpenCV to enhance the precision of monocular camera-based navigation in autonomous vehicles.
- Successfully presented and published the outcomes of the visual localization research in a peer-reviewed conference.
- Investigated combinatorial approaches to hierarchical visual localization, broadening the scope of research and uncovering potential advancements in the domain.

Robert Bosch GmbH

Research Intern

Renningen, Germany

Apr. 2018 – Aug. 2018

- Organized and delivered a tutorial on AUTOSAR for the research team, initiated communication with the director.
- Pioneered the development of a diagnosis system using an extended Kalman filter for an autonomous electric vehicle prototype's electric propulsion system.
- Explored the integration of modern AI methods into self-driving cars for diagnostic purposes.

PROJECTS

LLM4EDUKG | *Python, Git, Unix Shell, VS Code*

Mar. 2024 – Jun. 2024

- Assembled the first public dataset featuring four educational knowledge graphs, detailing knowledge components and their prerequisite relationships.
- Developed and assessed the capability of pre-trained large language models to interpret and reason over the dataset.
- Documented the development pipeline and disseminated the project via [GitHub](#) and a dedicated project [website](#).

StructInfer | *Python, Slurm, Git, Unix Shell, VS Code*

Dec. 2022 – Apr. 2024

- Engineered and generated observation trajectories for dynamical systems across various dimensions.
- Conducted a comprehensive evaluation of 13 structural inference methods, assessing accuracy, scalability, data efficiency, and robustness.
- Published benchmark results and datasets, making them accessible via [GitHub](#) and a project-specific [website](#).

PUBLICATIONS

- [Wang, A., and Pang, J.. \(2024\)](#). Structural Inference with Dynamics Encoding and Partial Correlation Coefficients. The 12th International Conference on Learning Representations (ICLR 2024). ([Link to paper.](#))
- [Wang, A., Tong, T.P., and Pang, J.. \(2023\)](#). Effective and Efficient Structural Inference with Reservoir Computing. Proceedings of the 40th International Conference on Machine Learning (ICML 2023). ([Link to paper.](#))
- [Wang, A., and Pang, J.. \(2023\)](#). Active Learning based Structural Inference. Proceedings of the 40th International Conference on Machine Learning (ICML 2023). ([Link to paper.](#))
- [Wang, A., and Pang, J.. \(2022\)](#). Iterative Structural Inference of Directed Graphs. Advances in Neural Information Processing Systems 35 (NeurIPS 2022). ([Link to paper.](#))
- [Hu, H., Wang, A., Sons, M. and Lauer, M.. \(2020\)](#). ViPNet: An End-to-End 6D Visual Camera Pose Regression Network. IEEE 23rd International Conference on Intelligent Transportation Systems (ITSC 2020). ([Link to paper.](#))

REWARDS

- College-level Excellence, 2011-2015
- Outstanding Graduates of Tongji University, 2015
- Travel Grant, NeurIPS 2022, ICML 2023, ICLR 2024

INTERESTS

Indoor Sports: Fitness, Badminton, Table Tennis.

Outdoor Sports: Snorkeling, Sky Diving, Hiking, Skiing, Surfing.

Arts: Photography, Classical Music, Jazz Music.