

EDUCATION

Xidian University (XDU) & Heriot-Watt University (HWU) 9/2020 ~ 6/2024
Joint Bachelor of Engineering in Telecommunications Engineering (GPA: 3.8/4.0, 89.6/100, top 10%)

- **Core Courses:** Mathematics for Engineering and Science (100/100), Mechanics and Waves (100/100), Introduction to Mechanical Engineering (99/100), Waves and Matter (97/100), Programming Practices (95/100), Digital Design and Programming (94/100), Introduction to Communications and Networks (97/100), Computer architecture and Embedded systems (95/100)

HONORS & AWARDS

- National Prize in “Challenge Cup” China Students Entrepreneurial Plan Competition 2022
- National Award in Computer Design Competition of Chinese College Students (Top 5%) 2022
- First Class Scholarship (Top 5%), XDU 2021
- Honorary Title for Outstanding Contributions to Internationalization, XDU 2021

PUBLICATIONS

- Incremental Deployment Method of Segment Routing over an IPv6 (SRv6) Network Based on Graph Neural Network (GNN) and Multi-Agent Reinforcement Learning (MARL) (Patents)
- “Development of Potential-free Artificial Intelligence Molecular Dynamics (PFAIMD) for Variable-sized Water Clusters” (Manuscript in preparation for submission to Nature Communications) – Frist Author

PROJECTS & RESEARCH

Development of Potential-free Data-driven Molecular Dynamics (PDMD) for Variable-sized Water Clusters
6/2023 ~ Present

Researcher | Advisor: Assis. Prof. Minghan Chen, Computer Science Department, Wake Forest University; Assis. Prof. Hanning Chen, Department of Chemistry, University of Texas at Austin; Prof. Yong Wei, Department of Computer Science, University of North Georgia

- Developed a potential-free artificial intelligence framework for variable-sized water clusters using Pytorch and PyTorch Geometric.
- Utilized the ChemGNN model, implemented various aggregators, and optimized the corresponding weights to achieve node-wise force prediction and graph-wise energy prediction.
- Applied SOAP to obtain more precise information about the atomic environment to create more accurate descriptors, which satisfied equivariance.
- Compared with the state-of-the-art DeepMD model, the mae of PDMD is smaller, and its efficiency is 10^5 times that of DFT, narrowing the gap between accuracy and efficiency.
- Achieved properties prediction for cross-phase water clusters.
- “Development of Potential-free Data-driven Molecular Dynamics (PDMD) for Variable-sized Water Clusters”, to be submitted to journal of Nature Communications.

HI-MCALS: A Highly Interpretable Deep Learning Framework for Predicting Multi-Class Amyotrophic Lateral Sclerosis Images 9/2023 ~ 4/2024

Researcher | Advisor: Assis. Prof. Vallejo Marta, Heriot Watt University

- Developed the HI-MCALS deep learning framework to improve the diagnosis of ALS, a severe neurodegenerative disease with a high impact on patients' quality of life.
- Utilized transfer learning to address small dataset challenges.
- Enhanced model interpretability with Grad-CAM, providing visual explanations for diagnostic decisions.
- Achieved 89% diagnostic accuracy with the proposed model.

Incremental Deployment Method of Segment Routing over an IPv6 (SRv6) Network Based on Graph Neural Network(GNN) and Multi-Agent Reinforcement Learning (MARL)

1/2022 ~ 3/2023

Course Project | Advisor: Assis. Prof. Wenting Wei, Advanced Networking Technology Lab, XDU

- Investigated the solution for deploying SRv6 while maintaining traffic engineering optimization goals, modeling with edge as intelligent agent, using GNN for information transfer, obtaining link weights and selecting upgraded SR nodes based on the weights and graph theoretical knowledge.
- Improved the system generalization ability, training speed, using traditional algorithms combined with machine learning to select nodes for upgrade deployment in different IPv6 networks.
- Programmed experimental code in Python, PyTorch and Mininet, involving GNN networks, environmental building, modeling training, etc.

SKILLS & OTHERS

- **Programming Languages:** Python (Proficient), C, Java, PyTorch (Proficient), MATLAB (Basic)
- **Language:** English (IELTS: 6.5 Speaking: 7.0), Mandarin (Native)
- **Leadership Activities:** New Young Global Competency Development Program; Deputy Head of Technical Department of Technology Association; Minister of Environmental Protection Department of Caring Society
- **Talent:** Table Tennis (Won 1st prize in a college competition)