Ruiyi Fang

Homepage: https://raelynfang.github.io/ GitHub LinkedIn
fangry@csu.edu.cn Google Scholar

Education

- **Central South University** Changsha, China
  Master of Engineering in Artificial Intelligence (Recommended for admission) *Sep.2022 - Jun.2025*
  Thesis: Domain Adversarial Transfer Network Based Fault Detection for Few-sample Industrial Processes
  GPA: **3.82/4.0** **Advisor**: Kai Wang
- **Chang'an University** Xi'an, China
  Bachelor of Engineering in Automation *Sep.2018 - Jun.2022*
  Thesis: Domain Adversarial Neural Network for Industrial Fault Detection
  GPA: **3.61/5.0** Rank: 10%

Publications

- **Multi-step Difference-driven Domain Adversarial Network for Few-sample Fault Detection in Dynamic Industrial Systems**
  Ruiyi Fang, Kai Wang*, Xiaofeng Yuan, Zeyu Yang, Yalin Wang and Chunhua Yang
  Engineering Applications of Artificial Intelligence (EAAI), 2025
- **Unsupervised Domain Adversarial Network for Few-sample Fault Detection in Industrial Processes**
  Ruiyi Fang, Kai Wang*, Jing Li, Xiaofeng Yuan and Yalin Wang
  Advanced Engineering Informatics (AEI), 2024
- **Multi-source Domain Adversarial Network for Industrial Few-sample Fault Detection Under Variable Inconsistency**
  Ruiyi Fang, Kai Wang*, Xiaofeng Yuan, Yalin Wang and Chunhua Yang
  Transactions on Industrial Informatics (TII), Under review, 2025
- **Wasserstein Distance Based Domain Adversarial Autoencoder for Industrial Few-sample Fault Detection**
  Ruiyi Fang, Kai Wang*, Xiaofeng Yuan, Yalin Wang, and Chunhua Yang
  Asian Control Conference (ASCC), Jul. 2024 (Oral)

Research Experience

- **Deep learning fault detection method based on spatio-temporally industrial data** *Jan.2024 - Present*
  – Research on the applications of transfer learning and deep learning, particularly adversarial-based neural network, encoder-decoder models and self-attention mechanism for fault detection in industrial dynamic process with few samples, as well as data analysis and processing methods for raw industrial data.
- **Data-driven process monitoring for process industries** *Jan.2022 - Dec.2024*
  – Research on the theory of data-driven methods, including Transfer Learning, Transformer, Generative model, Imitation Learning, Reinforcement Learning, Contrastive Learning, Meta Learning, and problems of few-sample, dynamic and imbalanced training.

Awards & Honors

- **Outstanding Graduate** *2025*
- **National Scholarship** *2024*
- **Post-graduate First-Class Scholarship** *2022,2023,2024*
- **Academic Excellence Scholarship** *2018,2021*
- **Summer Exchange at Kyoto University, Japan.** *2023*
- **Summer Exchange at Universiti Teknologi MARA (UiTM), Malaysia.** *2020*
- **"HUAWEI CUP" China Post-graduate Mathematical Contest In Modeling** Second Prize(Leader) *2023*
- **"HUAWEI CUP" China Post-graduate Mathematical Contest In Modeling** Third Prize *2022*
- **Interdisciplinary Contest in Modeling (ICM)** Honorable Mention(Leader) *2021*
- **National Mathematics Competition for College Students** Third Price *2021*
- **National English Competition for College Students** Third Prize *2021*
- **National English Translation Competition for College Students** First Prize(1%) *2020*
- **Contemporary Undergraduate Mathematical Contest in Modeling** Second Prize(Leader) *2020*

Skills

Programming Skills:
Python, PyTorch, Matlab, C, CAD, Java, LaTeX, HTML/CSS, Git
Robotic Simulation & Control Platforms: ROS, Coppeliasim

Language

Mandarin (Native), **English** (TOEFL 99/120), **Japanese** (JLPT N1)

Academic Services

Reviewer:
Knowledge-Based Systems (KBS), Asian Control Conference (ASCC)