TINGYU MO

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EDUCATION

Ph.D. in Electrical and Electronic Engineering — Jan. 2024 - Now
The University of Hong Kong — *Hong Kong, China*
Advisors: Prof. Victor OK Li and Dr. Jacqueline CK Lam
Research Interests: AI for Social Good; Alzheimer's Disease Detection

M.Eng. in Electronic and Information Engineering — Sept. 2021 - Jan. 2024
Beihang University — *Beijing, China*
Advisor: Prof. Lei Ren
Published papers at TNNLS/TII

B.Eng. in Intelligence Science and Technology — Sept. 2017 - Jun. 2021
University of Science and Technology Bejing — *Beijing, China*
Thesis: Deep Adversarial Transfer Learning under Weak Supervision
Advisor: Prof. Yanling Zhang
GPA: 3.7/4.0

PUBLICATIONS

[1] Temporal-Frequency Attention Focusing for Time Series Extrinsic Regression via Auxiliary Task.
Lei Ren*, **Tingyu Mo***, Xuejun Cheng
*IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2023. (IF: 14.225), Accepted.*

[2] Meta-Learning Based Domain Generalization Framework for Fault Diagnosis with Gradient Aligning and Semantic Matching.
Lei Ren*, **Tingyu Mo***, Xuejun Cheng
*IEEE Transactions on Industrial Informatics (**TII**), 2023, vol. 20, no. 1, pp. 754-764. (IF: 11.648).*

[3] A Lightweight Group Transformer-Based Time Series Reduction Network for Edge Intelligence and Its Application in Industrial RUL Prediction.
Lei Ren, Haiteng Wang, **Tingyu Mo**
*IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), 2024. (IF: 14.225), Accepted.*

[4] A Wavelet-Enhanced Curriculum Domain Adaptation Model for Time-Series Sensor Data.
Lei Ren, Xuejun Cheng, **Tingyu Mo**
*IEEE Transactions on Industrial Informatics (**TII**), 2023. Under Review.*

[5] A Survey of Evolutionary Game and Resource Allocation.
Yanling Zhang, **Tingyu Mo**, Songtao Li, Yan Zhang, Qing Li
Chinese Journal of Engineering, 2022, 44(3): 402-410.

RESEARCH & INTERNSHIPS

Research Experience in Alzheimer's Disease Diagnostic — Jan. 2024 - Now
Instructor: Prof. Victor OK Li and Dr. Jacqueline CK Lam — *HKU-Cambridge AI for Neuro-disease Research Platforms*

- Mainly focus on **Early-detection of Alzheimer's Disease**.

- Exploiting Large Language Models (LLMs) to identify interpretable linguistic biomarkers within the context of few-shot and zero-shot learning settings and utilize these biomarkers to achieve detection of Alzheimer's Disease at early stage.
- Exploring how to use interpretable linguistic biomarkers to enhance the performance of traditional foundation models.

Research Experience in Transfer Learning Nov. 2021 - Mar. 2023
Instructor: Prof. Lei Ren *Beihang University*

- Mainly focus on **Domain Generalization** and **Domain Adaptation**.
- Proposed a heterogeneous domain generalization method Meta-GENE[2] to learn domain-invariant prediction strategy via aligning optimization directions and matching latent semantic information of multiple domains.
- Introduced a progressive knowledge transfer strategy[4] based on curriculum learning in the adversarial training framework to realize unsupervised domain adaptation.

Research Experience in Time Series Prediction Feb. 2022 - Sept. 2022
Instructor: Prof. Lei Ren *Beihang University*

- Mainly focus on **Time Series Forecasting** and **Extrinsic Regression**.
- Designed an information reconstruction-based auxiliary task [1] to dynamically redirect the attention of extrinsic regression model towards the most essential information in the temporal-frequency domain.
- Proposed a lightweight transformer incorporated a time series reduction strategy [3] that adaptively select task-relevant time steps and eliminate redundant time steps based on importance scores to reduce computation cost in long-term time series prediction.

Research Experience in Multi-Agent Game Theory Nov. 2019 - May. 2020
Instructor: Prof. Yanling Zhang *University of Science and Technology Beijing*

- Mainly focus on **Evolutionary Game Theory** and **Multi-Agent Ultimate Game** under Complex Network [5].
- Studied the factors affecting the emergence of fairness in a variety of complex networks within the framework of evolutionary game theory and under the setting of ultimatum game.
- Carried on numerical simulation, experimental data recording and visualization analysis of the evolutionary process.

AWARDS AND HONORS

- National Scholarship (Highest honor), Ministry of Education of China 2023
- Outstanding Graduate, Beihang University 2024
- Academic Scholarship, Beihang University 2022 - 2023
- Outstanding Graduate, University of Science and Technology Beijing 2021
- Third Prize in the "Huawei Cup" Graduate Mathematical Modeling Competition 2021
- First Prize in National Industrial Internet Innovation Competition 2023
- Second Prize in Undergraduate Research Training Program, National Level Project 2020
- First Prize in iCAN International Innovation and Entrepreneurship Competition, Beijing Division 2019
- Third prize in the "dream +" innovation and entrepreneurship competition 2019
- Merit Student, University of Science and Technology Beijing 2017 - 2020
- Excellent Individual in Social Practice, University of Science and Technology Beijing 2018

PROFESSIONAL ACTIVITIES

Conference/Journal Reviews: IEEE Transactions on Industrial Informatics (TII), Data & Policy

SKILLS

Programming Languages: Python, C, Shell
Language Skills: IELTS 6.5(6), CET-4 (575), CET6 (515), Cantonese
Tools for ML/DL: PyTorch, Tensorflow, wandb, tsai
Others and Soft Skills: LaTex, Markdown, Linux