

Jun Li

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EDUCATION

HongKong University of Science and Technology

Master of Science, Biomolecular Engineering and Health Informatics

HongKong, China

Sep 2025 - Present

Jilin University

Bachelor of Engineering, Electrical Engineering (GPA: 3.5/4.0)

Jilin, China

Sep 2020 - Jun 2024

PUBLICATIONS

Conference Proceedings

- Li, J., Liu, C., Cheng, S., Arcucci, R., Hong, S. (2023). Frozen Language Model Helps ECG Zero-Shot Learning. Medical Imaging with Deep Learning. **(Oral Presentation)**
- Zhou, S., Geng, S., Li, J., Zhang, D., Xie, Z., Cheng, C., Hong, S. (2023). Less is More: Reducing Overfitting in Deep Learning for EEG Classification. Computing in Cardiology.
- Jin, J., Wang, H., Li, H., Li, J., Pan, J., Hong, S. (2025). Reading your heart: Learning ecg words and sentences via pre-training ecg language model. International Conference on Learning Representations (ICLR 2025)

Journal

- Li, J., Guo, Y. (2023). EEG Detection and Prediction of Freezing of Gait in Parkinson's Disease Based on Spatiotemporal Coherent Modes. IEEE Journal of Biomedical and Health Informatics
- Li, J., Goldenholz, D. M., Alkofer, M., et al. (2025). Expert-Level Detection of Epilepsy Markers in EEG on Short and Long Timescales. NEJM AI.
- Li, J., Aguirre, A. D., Junior, V. M., et al. (2025). An Electrocardiogram Foundation Model Built on over 10 Million Recordings. NEJM AI.

RESEARCH EXPERIENCE

Harvard Medical School, Supervisor: M.Brandon Westover, M.D., Ph.D. | *Research Intern*

Jul 2023 - Dec 2023

Creating an EEG Expert-Level AI System for Epilepsy Detection

- Developing an expert-level AI system for detecting seizures and seizure-like events in EEG recordings, capable of classifying abnormal activity in both short (10 seconds) and long (30 minutes) durations.
- Designing a universal EEG visualization interface, assisting neurologists in combining original EEG data with AI system results for expedited and accurate diagnosis.
- Achieving **expert-level performance** for epilepsy detection and addressing previous challenges of artifact misidentification in EEG AI systems through the implementation of hard negative mining.

Developing a Foundation Model for Cardiac Disease Detection from ECG

- Building a comprehensive ECG foundation model on Harvard-Emory ECG Dataset, which is the **largest ECG dataset** with over 10 million samples.
- Evaluating the generalization capabilities across multiple scenarios, including wearable devices ECG, noisy ECG, and clinical ECG.

Peking University, Supervisor: Shenda Hong, Ph.D. | *Research Assistant*

Nov 2022 - Present

Leveraging Large Language Models for ECG Detection

- Introduced a multi-modal approach for zero-shot learning in ECG analysis, enabling adaptation to a variety of downstream ECG classification tasks without requiring task-specific fine-tuning.
- Constructed an ECG-text contrast learning framework to align their embeddings and learn their joint latent representation.
- This is the **first work** to apply a large language model for physiological signals, and time series data more broadly.

Beihang University, Supervisor: Yuzhu Guo, Ph.D. | *Visiting Student*

Jan 2022 - Nov 2022

Investigating Spatiotemporal Coherent Modes in EEG During Freezing of Gait

- Analyzed the time and frequency domain features in EEG signals from patients with Parkinson's disease experiencing freezing of gait episodes.
- Developed a data-driven model to uncover spatial patterns of dynamic brain functional connectivity, differentiating between freezing of gait and normal gait events.

PROJECT EXPERIENCE

Intelligent Piano Education System | *Founder & Developer*

May 2021 - Dec 2021

- Developed a multiple sensors piano system with photoelectric sensing system, camera and microphone for simulating and summarizing the multi-modal information during piano playing.
- Applied for an invention patent.

Ligament Reconstruction Surgery System | *Developer*

Dec 2022 - Present

- Developed a computer-aided navigation system for ligament reconstruction surgery, improving the safety and reliability of surgery and reducing the failure rate of surgery.

HONORS AND AWARDS

- 2023 - 2nd Prize on Chinese Collegiate Computing Competition
- 2022 - Outstanding Prize Winner of the Brain Future, top performing undergraduates in Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences
- 2022 - 2nd Prize in the Undergraduate Scholarship of Jilin University
- 2021 - 2nd Prize on National College Student Robot Competition(Robomaster)

PRESENTATIONS

- **Li, J.**, Guo, Y. (2022). EEG Detection and Prediction of Freezing of Gait in Parkinson's Disease Based on Spatiotemporal Coherent Modes. Technologies for Neuroengineering, virtual.(Poster)
- **Li, J.**, Liu, C., Cheng, S., Arcucci, R., Hong, S. (2023). Frozen Language Model Helps ECG Zero-Shot Learning. Medical Imaging with Deep Learning(Poster and Oral Presentation)

SKILLS

Programming

- Proficient in Python, Matlab, \LaTeX , Linux, Pytorch
- Experienced in C/C++

Language

- Chinese (Native), English (Fluent), Cantonese (Understand)