Jiazhen Hong

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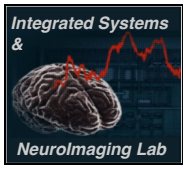

EDUCATION

Rutgers University, New Brunswick, NJ, USA *Ph.D. candidate* *01/2020 – Present*
Computer Engineering, G.P.A.: 3.9/4.0
Thesis Topic: Artificial Intelligence for Time-Series Signal Processing in Brain-Computer Interfaces (BCIs)

Stevens Institute of Technology, Hoboken, NJ, USA *M.Sc.* *09/2017 – 01/2019*
Electrical Engineering, G.P.A.: 3.9/4.0

WORKING EXPERIENCE

Integrated Systems & Neuroimaging Lab, Rutgers University *Teaching/Research Assistant* *01/2020 – Present*
- Developed ChatBCI, a complete real-time mind-controlled **brain-computer interface (BCI)** speller system enhanced with **LLMs**
- **Led** the integration of a **LoRA-Llama** model into the BCI project, incorporating **generative AI**
- Led and designed an **NSF-funded** temporal perception project involving **neural signal processing** and **ML**
- Developed topographic **image representation** for video-like electroencephalography (**EEG**) signals using **TimeSformer**
- Created a channel-selection method to improve the efficiency of **time-series** BCI processing for motor-imagery tasks

EMOTIV, San Francisco, CA, USA *Research Intern* *10/2024 – 09/2025*
- Published three **first-author** papers accepted at **NeurIPS 2025**, IEEE **ICDM** 2025, and **KDD** 2025
- Designed and **patented** an EEG foundation model (self-supervised learning, Mamba-based) for EMOTIV

Conference Reviewer & Technical Program Committee
- Conference Neural Information Processing Systems (**NeurIPS**) *2025*
- IEEE International Symposium on Biomedical Imaging (**ISBI**) - **Technical Program Committee** *2025 – 2026*
- IEEE Transactions on Biomedical Engineering (**TBME**) *2025*
- International Conference on Artificial Intelligence and Statistics (**AISTATS**) *2023 – 2024*
- IEEE International Conference on Acoustics, Speech, and Signal Processing (**ICASSP**) *2024*

TECHNICAL SKILLS

- Python (**PyTorch Lightning**, TensorFlow, scikit-learn, Qt5, NumPy, Pandas)
- MATLAB® (**EEGLAB**, Digital Signal Processing toolbox, object-oriented programming)
- Tools (Git version control, GitHub, **Google Cloud Platform**, Latex, **Hugging Face**, VSCode, Anaconda, SSH)

SELECTED PUBLICATIONS

(Accepted/Published)
- **J. Hong**, W. Qian, Y. Chen, and Y. Zhang, “A geometric approach to k-means,” IEEE Transactions on Knowledge and Data Engineering (**TKDE**), accepted, 2025
- **J. Hong**, W. Wang, and L. Najafizadeh, “ChatBCI, a P300 speller BCI with context-driven word prediction leveraging **large language models**, from concept to evaluation,” **Scientific Reports** (**Nature Portfolio**), accepted, 2025.
- **J. Hong**, G. Mackellar, S. Ghane, “SpellerSSL: **Self-Supervised Learning** with P300 Aggregation for Speller BCIs” is accepted by the 39 Annual Conference Neural Information Processing Systems (**NeurIPS**)
- **J. Hong**, G. Mackellar, S. Ghane, “An Efficient Self-Supervised Framework for Long-Sequence EEG Modeling” is accpeted by IEEE International Conference on Data Mining (**ICDM**)
- **J. Hong**, and L. Najafizadeh, “Enhancing Typing Speed in **LLM-based** P300 Speller BCIs Using A New Data-Driven Dynamic Stopping Strategy,” is accpeted by IEEE EMBS 12th Annual International Conference on Neural Engineering (**NER** 2025)
- **J. Hong**, P. Rao, W. Wang, S. Chen, and L. Najafizadeh, “ChatBCI4ALS: A High-Performance, **LLM-Driven** Intent-Based BCI Communication System for Individuals with ALS,” 47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (**EMBC** 2025)
- **J. Hong** and L. Najafizadeh, “TopoEEG: a **TimeSformer**-Based Topographic **Image Representation** Method for Early Single-Trial Detection of P300,” 22nd IEEE International Symposium on Biomedical Imaging (**ISBI** 2025)
- **J. Hong**, L. Najafizadeh, “P3T: A **Transformer** Model for Enhancing Character Recognition Rates in P300 Speller Systems,” 58th Annual Asilomar Conference on Signals, Systems, and Computers (**Asilomar** 2024)

AWARDS

- Research & Conference Travel Award funding by the School of Graduate Studies (SGS) *03/2025*
- Trainee Travel Award of 2024-2025 Rutgers Brain Health Institute, Cognitive and Sensory Neuroscience Focus Area *02/2025*
- Travel Award of 2024 IEEE Brain Discovery & Neurotechnology Workshop *09/2024*
- Best Teaching Assistant Award for Fall 2023, Rutgers ECE *05/2024*