

HYO-JEONG LEE

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Summary

Undergraduate in computer science with interdisciplinary research experience in cognitive neuroscience. Focused on understanding **neuronal network dynamics** using **theoretical neuroscience** and **cognitive modeling**.

Education

Gwangju Institute of Science and Technology (GIST) Mar 2022 – Present

B.S. in Electrical Engineering and Computer Science

Minor in Biomedical Science and Engineering

- **GPA:** 3.88/4.0
- **Key Courses:** Linear Algebra, Discrete Mathematics, Bio Statistics and Machine Learning, Introduction to Artificial Intelligence, Computational Models of Cognition

University of California, Berkeley

Jan 2025 – May 2025

Berkeley Global Access Program

Korea Advanced Institute of Science and Technology (KAIST)

Aug 2024 – Dec 2024

Visiting Student

University of California, Berkeley

June 2023 – Aug 2023

Summer Session Program

Research Experience

Neurophotronics Lab, GIST

Gwangju, South Korea

Undergraduate Researcher (Advisor: Prof. Euiheon Chung)

Sep 2025 – Present

- Led a project on spectral graph theoretical analyses on primary cortical neuron cultures using high-density multielectrode arrays (HD-MEAs) with amyloid-beta oligomers.

The Computation and Language Lab, UC Berkeley

Berkeley, United States

Undergraduate Researcher (Advisor: Prof. Steven Piantadosi)

May 2025 – Present

- Led a project on decoding causal states from feature vectors in task-trained recurrent neural networks (RNNs) for cognitive modeling.
- Investigated how causal states can function as general cognitive states, and analyzed their embedding properties in functional magnetic resonance imaging (fMRI) and RNNs.

Brain Machine Intelligence Lab, KAIST

Daejeon, South Korea

Undergraduate Researcher (Advisor: Prof. Sang Wan Lee)

Sep 2024 – Dec 2024

- Participated in a project decoding electroencephalogram (EEG) signals of prediction errors in model-based and model-free decision-making.
- Assisted graduate students with literature review, code evaluation, and research discussions.

BioComputing Lab, GIST

Gwangju, South Korea

Undergraduate Researcher (Advisor: Prof. Sung Chan Jun)

June 2024 – Aug 2024

- Led a project exploring behavioral and EEG responses in Deepfake face discrimination under label alteration.
- Designed and conducted an EEG recording behavioral experiment and analyzed event-related potentials.

Neurophotronics Lab, GIST

Gwangju, South Korea

Undergraduate Researcher (Advisor: Prof. Euiheon Chung)

Dec 2022 – Feb 2024

- Participated in a HD-MEA project, focusing on research design and the initial experiment setup.
- Acquired proficiency in new software and instruments in the lab through direct consultation with company engineers, and identified optimal experimental settings.

Preprints & Conferences

Lee, H., Ashiquzzaman, A., Kwon, H. S., Kim, Y. R., Kim, S. S., & Chung, E. (2025, Nov 6-8). *Spectral Graph Theoretical Characterization of Cortical Neuronal Networks using HD-MEA* [Poster session]. The Korean Society of Medical & Biological Engineering Fall Annual Meeting, Gimhae, South Korea.

Teaching Experience

PIUM: Science Education Program *Sep 2022 – Nov 2022*
Volunteer Tutor

Extracurricular Activities

AlleoDreamy: AI Newsletter Team *Nov 2024 – Present*
Writer

Google Developer Student Clubs *Sep 2023 – Feb 2024*
School Core Team External Relations Leader

Buddy Program *Sep 2023 – Dec 2023*
Volunteer for International Freshmen

Korean I-Corps: Mock Starup Team *Jun 2022 – Feb 2023*
Product Manager & External Relations

Asian Science Camp *Jun 2022 – Jun 2022*
Representative of Korea

Skills

Experiment: *in vitro* Cortical Neuron Culture, Vibratome, EEG, Mouse Handling, Mouse Behavior Test

Software: Brainwave5 (3Brain), EEGLAB, UCINET

Programming: Python, MATLAB, C, R, Java

Language: Korean (Native), English (Fluent; TOEFL 104/120)

Awards & Honors

National Scholarship for Science and Technology *Mar 2022 – Present*

Study Abroad Program Scholarship *Jan 2025 – Mar 2025*

Academic Excellence Scholarship *Sep 2024 – Dec 2024*

AI4GOOD Hackathon: AWS AI Award *Mar 2024 – Mar 2024*

- Won 1st place among 200+ teams nationwide.
- Worked as team leader and a project manager, in addition to data processing.

Academic Excellence Scholarship *Mar 2022 – Dec 2023*