

Emil Kim

Busan, South Korea, 46286

emilkim01@pusan.ac.kr • linkedin.com/emeelkaa • emeelkaa.github.io • +82-10-2892-7911

Education

Pusan National University

M.S., Graduate School of Artificial Intelligence. GPA: 4.25/4.5

Busan, South Korea

March 2025 – Present

Pusan National University

B.S., Computer Science and Engineering. GPA: 4.01/4.5

Busan, South Korea

September 2020 – January 2025

Nazarbayev Intellectual School of Physics and Mathematics

A Level, GPA: 5/5 in Mathematics and Information Technology

Taldykorgan, Kazakhstan

September 2015 - May 2020

Research Interests

Biosignal analysis (EEG, ECG) • multimodal representation learning • medical image analysis.

Experience

IC&ML Lab, Pusan National University

Busan, South Korea

Graduate Research Assistant

September 2024 – Present

- Designed, trained and evaluated deep learning architectures based on Transformers and state-space models for neural signal analysis and representation learning, improving performance by 6.6% and reducing inference latency by 7.1% across benchmark datasets.
- Developed multimodal learning frameworks for EEG–fMRI translation, focusing on cross-modal representation learning, achieving superior reconstruction performance and reducing model parameters by $3.2\times$ and peak memory by $2.3\times$.
- Developed and evaluated foundation-model approaches for multimodal biomedical data using more than 1TB of data.

Pusan National University

Busan, South Korea

Teaching Assistant — Introduction to Unix Programming (CB2001102-060)

March 2026 – June 2026

- Designed programming assignments, led weekly practice sessions, and mentored undergraduate students.

Publications

Journal Articles

- E. Kim and J. K. Gahm, “HSST-EEG: A Hybrid State-Space and Transformer Architecture for EEG Decoding,” *IEEE Access*, vol. 14, pp. 79188–79196, 2026.
- E. Kim, Y. Kenes, S. D. Tran, and J. K. Gahm, “Multi-Scale EEG Feature Extraction with Attention Mechanism for Seizure Detection,” *Journal of KIISE*, vol. 53, no. 6, pp. 497–506, 2026.

Conference Proceedings

- E. Kim and J. K. Gahm, “MARBLE: Lightweight EEG-to-fMRI Translation via Mamba-Attention and ROI-Conditioned Decoding,” *MICCAI*, Strasbourg, France, September 2026.
- E. Kim and J. K. Gahm, “CGM-EEG: Cross-Gated Mamba for Spatio-Temporal EEG Representation Learning,” *ISBI* (Oral), London, UK, April 2026.
- E. Kim, Y. Kenes, S. D. Tran, and J. K. Gahm, “Multi-Scale EEG Feature Extraction with Attention Mechanism for Seizure Detection,” *KCC*, Jeju, South Korea, July 2025.

Awards & Scholarships

1st Place, Three Minute Thesis (3MT) , Pusan National University, South Korea	August, 2026
Best Paper Award , Physical AI International Forum (JKAIA), Seoul, South Korea	2025
Graduate School Scholarship , Pusan National University, Graduate School of AI	2025 – Present
Samsung Dream Scholarship , Samsung Dream Scholarship Foundation	September 2024 – December 2025

Skills & Interests

Programming: Python, C, C++, MATLAB

ML Frameworks: PyTorch, Hugging Face, Scikit-Learn

Tools: Git, Linux, Docker, CUDA, NumPy, Pandas

Language: Russian (Native), English (IELTS 8.0), Korean (TOPIK Level 5)