SUMIN PARK

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Linkedin | Github |

EDUCATION

- **Korea Advanced Institute of Science and Technology (KAIST)** *Sep 2024 – Present*
  M.S. in Computer Science Daejeon, South Korea
  - GPA: 4.18 / 4.30

- **Ewha Womans University** *Mar 2016 – Feb 2021*
  B.S. in Brain and Cognitive Sciences & B.S. in Life Sciences Seoul, South Korea
  - GPA: 4.07 / 4.30 (Summa Cum Laude)
  - Thesis: *Differential Mechanism of Positive and Negative Valence Representation: A Focus on Amygdalar Circuitry*

EXPERIENCE

- **Big Data Analysis & Learning Laboratory (BigDyL), KAIST** *Sep 2024 – Present*
  Master's Student Researcher Daejeon, South Korea
  - Advisor: Noseong Park
  - Research Topic: Interpretable LLM architectures, State-Space-Models (SSMs), Mixture-of-Expert (MoE), Representation learning, Brain-inspired AI.

- **Big Data Analysis & Learning Laboratory (BigDyL), Yonsei University** *Jul 2023 – Aug 2024*
  Research Intern Seoul, South Korea
  - Advisor: Noseong Park
  - Research Topic: Graph representation learning, Graph neural networks (GNN)

- **DNI Consulting** *Feb 2022 – Apr 2024*
  Data Scientist Seoul, South Korea
  - Research Topic: Data analysis and modeling for B2B marketing and customer segmentation

- **Cell Physiology Laboratory, Seoul National University** *Aug 2020 – Jan 2021*
  Undergraduate Research Intern Seoul, South Korea
  - Advisor: Seokho Lee
  - Research Topic: Electrophysiology, PFC-involved systems consolidation

- **Neurobiology Laboratory, Seoul National University** *Dec 2019 – Feb 2020*
  Undergraduate Research Intern Seoul, South Korea
  - Advisor: Bongkiun Kaang
  - Research Topic: Molecular analysis on dopaminergic reward circuitry

- **Molecular Neuroscience Laboratory, POSTECH** *July 2019 – Sep 2019*
  Undergraduate Research Intern Pohang, South Korea
  - Advisor: Junghun Kim
  - Research Topic: Extinction of cocaine-context association memory

PUBLICATIONS

INTERNATIONAL CONFERENCES

[C5] **Q-Delta: Beyond Key–Value Associative State Evolution** | *Under Review*
- **Sumin Park**, Seojin Kim, and Noseong Park

[C4] **STAR: Rethinking MoE Routing as Structure-Aware Subspace Learning** | *Under Review*
- **Sumin Park** and Noseong Park

[C3] **How Many Experts Are Enough? Towards Optimal Semantic Specialization for Mixture-of-Experts** | *AAAI 2026*
- **Sumin Park** and Noseong Park

[C2] **DARS: Robust Sparse Fine-Tuning with Regularized Subspace Disalignment** | *ICLR 2025 Workshop (SCOPE)*

- **Sumin Park** and Noseong Park

[C1] **PANDA: Expanded Width-Aware Message Passing Beyond Rewiring** | *ICML 2024*

- Jeongwhan Choi, **Sumin Park**, Hyowon Wi, Sung-Bae Cho, and Noseong Park

Industrial Projects

- **Simulation-Based Defect Variable Identification from High-Resolution Images** *Mar 2025 – Dec 2025*
  - Ongoing **Samsung-KAIST** industry-academia project
  - Developed a multi-task, multi-class image classification framework to predict defective variables from simulation-generated images
  - Designed a ViT architecture with hierarchical attention for efficient high-resolution image processing, achieving 99.41% classification accuracy

Leadership and Extracurriculars

- **Ewha Institute of Brain & Cognitive Science, Ewha Womans University** *Spring 2020 – Fall 2020*
  President
  - Led and organized academic activities including weekly open research sessions and end-of-semester undergraduate journal publications
  - Reviewed multiple journals per session and authored weekly summary reports
- **Debate Association of Ewha (DAE), Ewha Womans University** *Spring 2019 – Fall 2019*
  Regular Member
  - Participated in weekly team debate sessions
  - Competed in national debate tournaments (SRT, KNC); SRT 2019 Quarter Finalist

Honors and Awards

- Summa Cum Laude, Ewha Womans University *2016 – 2020*
- Dean's List (7 semesters), Ewha Womans University *2016 – 2020*
- Academic Honors Scholarship, Ewha Womans University *Spring 2020*
- Global Leader in Major, Ewha Womans University *Spring 2020*
- Academic Honors Scholarship, Ewha Womans University *Spring 2019*
- Admissions Scholarship (Full Tuition, 2 Years), Ewha Womans University *2016 – 2018*

Skills

- **Programming & Frameworks:** Python, R, C++, PyTorch, Triton
- **Systems & Tools:** Linux, Git, Docker, AWS, SQL