CV: JUNGYOON KIM

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BROAD RESEARCH INTERESTS

- Convex and nonconvex optimization. Implicit regularization of stochasticity, momentum, adaptive methods. Feature learning and representation learning.

- Continual and online learning. Reinforcement learning theory.

- Information-theoretic approach to ML (Supervised/unsupervised learning as data compression, neural networks as approximate complexity measures)

- Complex systems and statistical physics (Network science, hyperuniformity and heavy-tailed distributions)

- Scientific computing + ML (Physics-informed neural networks, neural ODEs, graph neural networks and applications)

EDUCATION

Seoul National University, Seoul, Korea   2024.03 - present
Undergraduate student in Electrical and Computer Engineering
GPA: 4.09 / 4.30

Korea Science Academy of KAIST, Busan, Korea   2021.03 - 2024.02
GPA: 4.19 / 4.30

RESEARCH EXPERIENCE

Research Intern @ Intelligent Wave Systems Laboratory   2024.07 - 2026.02 (expected)
Advisor: Sunkyu Yu   *Department of ECE, Seoul National University*

· **Main Focus:** Neuronal Dynamics. Network science. Disordered systems.
· Discovered that dynamic neuronal systems undergo a phase transition from quiescence to chaos as the underlying network topology changes from regular lattice to random (Erdős–Rényi).
· Developed simulation pipelines in JAX for large-scale dynamical systems.
· Currently writing a first-author research paper based on this discovery.

PUBLICATIONS

AWARDS AND SCHOLARSHIPS

Presidential Science Scholarship, Korea Student Aid Foundation   2024.08 - present
Hanseong Scholarship for Gifted Students, Hanseong Son Jae-Han Foundation   2022 - 2024
Korean Young Physicists' Tournament Silver Medal   2022

TECHNICAL STRENGTHS

Computer Languages	Python, MATLAB, C++
Frameworks	PyTorch, JAX, NetworkX
Languages	Korean (native), English (fluent)