

Kyu-Hyeon Lee

Research Intern



CONTACT

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Skills

- **Programming:**
Python, R, C
- **Data Analysis:**
Numpy, Pandas, Matplotlib,
Seaborn, NetworkX

PROJECT EXPERIENCE

Deep Learning Audio Denoising

2025.11 – CURRENT

Team Leader

- Team project for course <Deep Learning> of 2025-fall semester
- Converted 1D audio waveforms into 2D spectrograms using STFT(Short-Time Fourier Transfrom)
- Developed a system to separate and restore clean speech from noisy audio by utilizing a deep learning model (U-Net)

Citation Network Analysis

2025.03 – 2025.06

Team Leader

- Team project for course <Capstone Design 1> of 2025-spring semester
- Analyzed citation networks to visualize the structure of the physics research field and identify major sub-disciplines and key papers.
- Collected and preprocessed citation data using Python (public API) and applied the Louvain Algorithm to identify 4 distinct research clusters.
- Used Dimensionality Reduction (PCA, MDS) for influence ranking and community visualization, and identified 'bridge papers' using Bridging Centrality.

Football Data Analysis

2024.10 – 2024.12

Team Leader

- Team project for course <Info-Physics> of 2024-fall semester
- Utilized Python to parse and preprocess complex JSON data and analyze La Liga matches to identify statistically significant factors.
- Developed tactical visualizations, including pass networks and comparative heatmaps(pass/shot/turnover) using Matplotlib and Seaborn.
- Performed independent t-tests to verify significant differences in metrics(shots, possession, turnovers) between winning and losing teams.

Kiosk System Implementation

2024.04 – 2024.06

Team Member

- Team project for course <C Programming> of 2024-spring semester
- Developed a Text-based User Interface(TUI) Kiosk system in C.
- Utilized core C features(pointers, structs, dynamic memory) for efficient data management and system operation.
- Implemented File I/O for CSV parsing and sales logging, and a sorting algorithm to rand aggregated sales data.

EDUCATION

KyungHee University (KHU)

2021.03 – 2027.02

B.S IN (Major) Department of Physics

(minor) Science Information Convergence

- Total GPA of 3.88/4.3 (96.33%), Major GPA of 3.81/4.3, minor GPA of 4.08/4.3

RESEARCH/INTERNSHIP

Computational Nanophysics Lab (KHU) 2025.09 – CURRENT
Undergraduate Researcher

- Materials Science research based on Solid-State Physics, DFT Principles, Computational Physics.
- Participated in research paper seminars.

Physics of Complex Systems and Informatic Lab (KHU) 2025.03 – 2025.06
Research Intern

- Studied fundamental concepts of network science through <A First Course in Network Science>
- Utilized the Python NetworkX library to construct, manipulate, and visualize network data structures.
- Analyzed complex network structures by calculating key topological properties and implementing centrality algorithms to identify critical nodes.

Quantum + Chips Internship 2024.07 – 2024.08
(University of Minnesota, UMN)
Research Intern

- Completed 4-track hackathon and computer lab series focused on semiconductors, spintronics, quantum physics, and quantum computing.

Others

Certification

- 2025.09 – ADsP
- 2025.09 – SQLD