

# JOON KIM

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## EDUCATION

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### University of California, Berkeley

Aug 2021 – May 2026 (Expected)

B.S. Electrical Engineering & Computer Science, GPA: 4.00/4.00

- **Relevant Coursework:** CS 61B(Data Structures: A+), CS 70(Discrete Math & Probability: A+), EECS 16A/B(Circuits & Control: A+), CS 61A(Python: A+), E 7(MATLAB & Numerical Analysis: A+), DATA 8(Pandas: A), CS 170(Algorithms), CS 188(Artificial Intelligence)

## EXPERIENCE

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### Berkeley Artificial Intelligence Research - CHEN Lab

Berkeley, CA

Undergraduate Researcher

Jul. 2024 - Current

- Designing LLM pseudo-label agents to improve medical semi-supervised learning performance; advised by Professor Irene Chen
- In charge of image experiments; investigated LLM agents for image labeling such as CLIP, and currently experimenting CIFAR-100

### JLK Group

Seoul, South Korea

Research Intern, First Author

Feb. 2024 - May. 2024

- Developed Federated Learning models reaching near identical performance to commercially deployed U-Net models using Python
- Collaborated with four M.D. professionals to investigate the use of Federated Learning in medicine; advised by Dr. Wi-Sun Ryu

### Keimyung University

Daegu, South Korea

Independent Researcher, First Author

Feb. 2023 - Jul. 2024

- Proposed a randomized masking algorithm as an obfuscation technique against Deep Leakage in image-based Federated Learning
- Designed experiments to compare performance-privacy trade-offs amongst SOTA defense algorithms; advised by Prof. Sejin Park

### Impact AI

Seoul, South Korea

Data Engineering Intern

Jul. 2022 - Aug. 2022

- Developed a data preprocessing pipeline to pattern-match raw datasets of various formats from multiple companies using Python
- Researched and presented eight AI-based B2B SaaS business case studies, showcasing their strengths, weaknesses, and outlooks
- Contributed in designing SQL-like UI/UX features for the main page of web and native applications deployed to client companies

### Studio.geo @ UC Berkeley

Berkeley, CA

Undergraduate Researcher

Feb. 2022 - May. 2022

- Experimented Progressive-GAN on the Savio cluster to generate artificial maps using Python; advised by Prof. Clancy Wilmott
- Pictures of 4x4 grid of generated maps of 256x256 pixels trained on real colored maps included in Prof. Wilmott's book proposal

### Independent Biomedical Research

Seoul, South Korea

Independent Researcher

Jan. 2020 - Jun. 2020

- Proposed a microarray analysis model for screening early schizophrenia with RNA genetic samples; overcame the lack of public RNA data with oversampling techniques and elected a Deep Neural Network model for inference; advised by Ph.D. Taehyun Kim
- Verbally presented research findings at the 2020 Society of Interdisciplinary Business Research Conference as a representative

## SELECTED PUBLICATIONS

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- **In-Silo Federated Learning vs. Centralized Learning for Segmenting Acute and Chronic Ischemic Brain Lesions** ([Medrxiv](#)); J. Kim, H. Lee, W. Ryu, et al.; Comparative analysis of Federated and Centralized Learning on brain MRI images. Showed Federated Learning is as effective as Centralized learning on real-life non-i.i.d. brain lesion datasets of ~10,000 patients over 9 institutions
- **Random Gradient Masking as a Defensive Measure to Deep Leakage in Federated Learning** ([Arxiv](#)); J. Kim, S. Park; Compared the efficacy of randomly masking gradients from Federated Learning submissions against other defenses against Deep Leakage from Gradients such as Pruning, Compression, and Noising on Convolution Neural Networks; Submitted to journal Applied Intelligence

## SKILLS

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- Python, PyTorch, Tensorflow, Docker, C, RISC-V, MATLAB, Pandas, Rust, Go, Java, Javascript, Flutter, Firebase