



JEONGGYU KANG

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EDUCATION

- **Korea Advanced Institute of Science and Technology (KAIST)** *March 2020 - February 2026*
Bachelor of Science in Electrical Engineering, Magna Cum Laude GPA: 3.88/4.3 (95.80/100)
– Admitted to Master of Science program in School of Computing, starting March 2026

RESEARCH & PROFESSIONAL EXPERIENCE

- **KAIST Collaborative Social Technologies Lab** *September 2025 - Present*
Research on collaborative group interaction analysis and dataset construction Undergraduate Research Intern
– Advisor: Prof. Joseph Seering
– Contributing to an audio-to-text dataset construction pipeline for analyzing group collaboration recordings
– Enhancing speaker diarization system by exploring parallelization approaches and speaker embedding techniques
- **Samsung Electronics Device Solution Division, S/W Development Team** *August 2024 - February 2025*
Development of advanced LLM service enhancement project Intern
– Developed a Prompt-Induced Reasoning (PIR) based Query Decomposition Unit that improved search quality by 28% and reduced zero-hit queries by 43%
– Implemented a Query-Document Relevance Check Unit based on DeepSeek-R1-Distill-Qwen-32B model, achieving 98.1% score stability
– Built a Retrieval-Augmented Generation (RAG) evaluation system and applied it to over 3,000 real-world evaluations
– Researched and developed LLM prompt engineering techniques optimized for Korean language environments
- **KAIST Integrated Vision Language Lab** *June 2024 - August 2024*
Research on LLM and RAG system optimization Independent Research
– Conducted comparative research on performance between standard LLMs and reasoning-enhanced LLMs
– Investigated optimal retrieval methodologies for RAG systems
– Performed fine-tuning experiments to enhance Korean-specific LLM performance
- **KAIST Neuro-Instrumentation & Computational Analysis Lab** *January 2024 - February 2024*
Research on deep neural networks for computer vision Independent Research
– Conducted in-depth study based on Stanford CS231n: Deep Learning for Computer Vision curriculum
– Researched convolutional neural network (CNN) architecture design and optimization techniques
– Implemented and experimented with core computer vision technologies including image segmentation, object detection, and image generation
– Built deep learning model implementation and training pipelines using PyTorch framework

AI/ML PROJECTS

- **Audio Anomaly Detection for Industrial Machinery** *2025*
Capstone Design Project - Based on DCASE Challenge Task
– Developed a deep learning-based solution for anomaly detection in industrial machinery audio data
– Implemented signal processing algorithms for time-series data preprocessing and feature extraction
– Applied self-supervised and semi-supervised learning methodologies to maximize label efficiency
– Researched ensemble techniques to improve performance compared to DCASE Challenge benchmarks
- **StyleMan: StyleCLIP + Manipulation** *2024*
Introduction to Artificial Intelligence Course Project
– Researched StyleCLIP improvement methodologies based on in-depth understanding of GAN and CLIP architectures
– Implemented a localized image editing pipeline for text prompt-based image style manipulation
– Explored and manipulated semantic directions in low-dimensional latent space for high-quality image generation
– Enhanced StyleCLIP performance through hyperparameter optimization and loss function improvements

LEADERSHIP & COMMUNITY PROJECTS

• CORONAVI

January 2020 - July 2020

Project Leader, Product Design and Marketing Lead

- Developed a service visualizing critical COVID-19 data during the early pandemic, including confirmed cases, recovered patients, fatalities, regional infection status, and global infection trends
- Designed and implemented the complete pipeline for data collection, preprocessing, and visualization
- Created a user experience (UX) focused interface to improve accessibility of complex information

• PRIMA - "Prime Education to its Finest"

June 2020 - September 2022

Educational Platform Planning and Operation

- Designed and operated an educational platform connecting students with prestigious university mentors for affordable college admission preparation
- Served as an official mentor on Studywithme, the talent sharing platform of Korea's largest test-taker community 'Sumanhwi'
- Provided tailored admissions consulting and solutions to over 50 high school students nationwide

RELEVANT COURSEWORK

Electrical Engineering:

EE20001 Circuit Theory
EE20002 Signals and Systems
EE20009 Programming Structure for Electrical Engineering
EE20011 Introduction to Physical Electronics
EE30003 Digital System Design
EE40024 Introduction to Optimization Techniques
EE20014 Machine Learning Basics and Practices
EE40069 Brains, Machines, and Societies
EE49004 Special Topics in EE: AI Convergence Capstone Design

Computer Science:

CS30706 Machine Learning
CS40700 Introduction to Artificial Intelligence
CS50700 Artificial Intelligence and Machine Learning
CS50706 Computer Vision

Currently Enrolled (Fall 2025):

EE40034 Deep Learning for Visual Understanding
EE49904 Special Topics in EE: Introduction to Reinforcement Learning
CS30704 Introduction to Human-Computer Interaction

TECHNICAL SKILLS

Programming Languages: Python, C

Frameworks & Tools: TensorFlow, PyTorch, Hugging Face Transformers

AI/ML Skills: GAN, CLIP, LLM, RAG, Prompt Engineering, Object Detection, Segmentation

Languages: Korean (Native), English (Fluent, TOEIC 975, TOEFL 110)

AWARDS

- **National Silver Award in Mechatronics-** 37th National Youth Science Exploration Competition 2019
- **Outstanding Young Scholar Award-** Research Poster Category, Korea Youth Academic Conference 2019
- **Bronze Award-** Nobel Science Club Presentation Competition, Daejeon Office of Education 2018
- **Grand Prize-** Startup Idea Proposal Festival, Daejeon Chungnam Regional SMEs Agency 2018
- **Grand Prize-** Sustainable Development Science & Technology Startup Competition 2018
- **Excellence in Collaboration Award-** Global Design Thinking Hackathon 2018