

CURRICULUM VITAE
Hyeonbeen Jeon

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Last Updated in February, 2026

EDUCATION

B.S. Candidate in Physics and Electrical & Electronic Engineering

Yonsei University (Seoul, Korea)

Mar.2020 – Feb.2027 (Expected)

- Leave of absence for mandatory military service
- GPA: 4.12/4.30

Nov.2022 – May.2024

RESEARCH INTERESTS

Diffusion Models, Diffusion Language Models, Network Quantization

RESEARCH EXPERIENCES

Artificial Intelligence and Information Systems Lab. (AI-ISL), Yonsei University

Undergraduate Researcher (Advisor: Prof. Albert No)

Feb. 2026 - Present

- Conducted a guided reading and review of papers on discrete diffusion language models.

UNDERGRADUATE PROJECTS (SELECTED)

100-class Face Recognition via Transfer Learning with Pre-trained ResNet-18

PyTorch

Fall 2025, Introduction to Artificial Intelligence

- Implemented training pipelines for a given face recognition dataset (5,000 images, 100-class), considering its small size and low similarity to ImageNet.
- Established a baseline by using linear probing and adjusting stem strides for resolution mismatch with ImageNet, achieving 56.4% accuracy.
- Improved the baseline by progressively expanding the fine-tuning scope with layer-wise learning rate decay and enhancing generalization through data augmentation tailored to model capacity.
- Achieved the highest accuracy (**95.7%**) by fine-tuning the entire network including stem layers, addressing the mismatch from the stride adjustment without training in the baseline.

Training-free CAM-based Object Localization with Fully Convolutional ResNet-18

PyTorch

Fall 2025, Introduction to Artificial Intelligence

- Converted a pre-trained ResNet-18 into a fully convolutional network by replacing the GAP layer with average pooling and reformulating the FC layer as a 1×1 convolution.
- Performed object localization by upsampling class activation maps to the original input resolution and generating bounding boxes for regions exceeding a specific threshold.
- Analyzed model limitations, such as partial coverage of discriminative parts and the inability to localize multiple objects, unseen classes, or high-resolution images.

Efficient CNN Accelerator Design using Row-stationary Dataflow and Ternary Quantization

Verilog, FPGA, PyTorch

Spring 2025, Intelligent System Design and Applications

- Applied the row-stationary dataflow to the line buffers to maximize data reuse and minimize redundant memory access during convolution.
- Reduced inference latency to $123.75\mu s$ per image by utilizing the pooling layer as a buffer for pipelined layer execution and applying batch processing to alleviate BRAM-external memory bottlenecks.
- Enhanced inference efficiency by applying ternary quantization to INT8 weights, maintaining 95% accuracy through Leaky ReLU integration and hyperparameter optimization.

EXTRACURRICULAR ACTIVITIES

Yonsei Artificial Intelligence Club (YAI)

July. 2025 – Present

16th - 17th Member

- Participated in group studies to discuss and review key computer vision papers (e.g., classification, object detection, generative models, etc.) and study the mathematical backgrounds (e.g., analysis)
- Implemented the reviewed models through collaborative projects using PyTorch.

Diffusion Models Seminar (Instructor: Prof. Kyungwoo Song)

Dec. 2025 – Present

- Studied and discussed the theoretical foundations of diffusion models using “The Principles of Diffusion Models” (Chieh-Hsin Lai et al.) as the primary textbook.
- Developed a unified and systemic perspective on diffusion models by interpreting Variational, Score-based, and Flow-based frameworks.

AWARDS & HONORS

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| • Honors | Feb. 2025 |
| • High Honors | Feb. 2021 |
| • Yonsei Veritas Scholarship (GPA Based) | Jun. 2021, Feb. 2025, Aug. 2025 |
| • 2023 KMS Mathematics Competition for University Students | Dec. 2023 |
| Non-mathematics major fields, 3rd Prize | |
| • 2020 Yonsei-Nexon $\sqrt{i}$ RC Creative Platform, 4th Prize | Dec. 2020 |

SKILLS & TECHNIQUES

Coding Skills

PyTorch, Python, Verilog HDL, C/C++, L^AT_EX

OTHERS

Mandatory Military Service
Republic of Korea Army

Nov.2022 - May.2024
Sergeant, Honorable Discharge