

WOOSEOK KIM

Email: wooseokkim@cmail.carleton.ca ◊ Phone: +1 613-292-5851 ◊ GitHub: [3seoksw](https://github.com/3seoksw)
Ottawa, ON, Canada

EDUCATION

Carleton University; Ottawa, Canada. M.S. Computer Science (Data Science Specialization)	September 2025 – August 2027
San Jose State University; San Jose, California, United States. Certificate of Achievement: Silicon Valley Software Technology & Artificial Intelligence Program	July 2024 – August 2024
Sangmyung University; Seoul, Republic of Korea. B.S. Computer Science GPA: 97.0 / 100	March 2019 – February 2025

TECHNICAL SKILLS

- Programming Languages: Python, C, Java, C++, Rust, JavaScript, TypeScript, React
- Machine Learning Frameworks: PyTorch, Tensorflow, Keras, PyTorch Lightning
- Tools: Linux, Git, Docker, Anaconda, L^AT_EX

RESEARCH EXPERIENCES

Research Assistant Intelligent Machines Lab (iML), Carleton University	September 2025 – Present
Undergraduate Research Intern Network Information Systems Lab, Sangmyung University	June 2023 – Present

• Advisor: Professor Majid Komeili

• Advisor: Professor KyungSeop Shin

• First-author of a SCOPUS-indexed journal paper, titled "Optimal Power Allocation and Sub-optimal Channel Assignment for Downlink NOMA System Using Deep Reinforcement Learning". The paper demonstrates a 39% improvement in resource allocation performance using policy gradient reinforcement learning method. [\[Paper\]](#)

• Enhanced a personal project on autonomous vehicle simulation by implementing policy-based motion planning using Deep Reinforcement Learning and led seminars for lab members.

PERSONAL PROJECTS

- Developed a Transformer-based ion battery degradation prediction model. Performed experiments and wrote technical report on finding correlations between encoder's output and dataset's properties by using PCC analysis.
- Developed a Super Mario Bros. agent using Double DQN with Python, PyTorch, and Gymnasium environment, achieving human-level playtime performance of 30 seconds.
- Established an autonomous vehicle simulation, reduced 20% in lane deviation by applying transfer learning from obstacle detection to lane detection.
- Created a macOS menu-bar app using Swift and Rust to automate Unicode filename normalization (NFD → NFC), solving a common daily pain point for non-English macOS users.

COURSEWORK PROJECTS

- Performed extensive MLLM experiments from LION model, comparing soft-prompting and token embeddings techniques, and wrote a technical report showing advantages and disadvantages of the techniques.
- Improved PK-YOLO in brain tumor detection by outperforming state-of-the-art performance in axial plane data. Applied Mixture-of-Experts framework which uses domain-specific backbones and router module to control the importance of each backbone.
- Classified IMDb movie reviews as positive or negative by building an RNN model using a custom scraper to collect and preprocess the dataset.

- Generated multiple images with reproducing a GAN model, experimenting with different loss functions and optimizers to observe their impact on performance.
- Analyzed the effects of CNN model's convolutional layers' operation on model performance for MNIST dataset.
- Performed image generation and classification with an Autoencoder model for MNIST dataset, analyzing limitations in generating simple images and optimizing the model to generate more complex images by increasing model capacity and latent space size.

HONOURS AND AWARDS

Research Assistant Scholarship	September 2025 – August 2027
Academic Scholarships for Computer Science (Sangmyung University)	2019, 2022, 2023, 2024
Outstanding Program Performance (San Jose State University)	August 2024
Entrepreneurship Award (San Jose State University)	August 2024
Outstanding Computer Science Graduation Project Exhibition Award (Sangmyung University)	November 2024
Fourth Prize in Capstone Design Competition (Sangmyung University)	December 2024
Software Talent Scholarship (Sangmyung University; SW-Centered University Project Group)	December 2024
Army Warrior Award (Republic of Korea Army)	October 2021
The Army Commendation Medal: Outstanding Service (U.S. Army)	August 2021
Outstanding KATUSA Award (Republic of Korea Army)	May 2021
Excellence Award in Combined Command Post Training (U.S. Army)	September 2020

OTHERS

Military Service	April 2020 – October 2021
Korean Augmentation to the United States Army (KATUSA)	
• Korea Army Squad Leader (Republic of Korea Army)	