

RESEARCH INTEREST

My research interest is bridging the gap between the digital and physical worlds through **statistics-inspired control methods** and **control theory-inspired machine learning methods**.

- **Statistics for Control**: Uncertainty-aware learning of control systems, reinforcement learning
- **Control for Learning**: Optimal control-inspired optimizers of neural networks, stochastic optimal control for generative models

EDUCATION

- **M.S. in Electrical & Computer Engineering** *Mar. 2025 - Present*
University of Seoul Seoul, South Korea
- **B.S. in Electrical & Computer Engineering** (including military service) *Mar. 2018 - Feb. 2025*
University of Seoul Seoul, South Korea
- **B.S. in Statistics** (including military service) *Mar. 2018 - Feb. 2025*
University of Seoul Seoul, South Korea

EXPERIENCE

- **Control and Dynamic Systems Lab, University of Seoul** *Jan. 2024 - Present*
Master Student, Undergraduate Research Intern Seoul, South Korea
– Currently improving the differential dynamic programming algorithm.
- **Intelligent Robot Lab, University of Seoul** *Jan. 2023 - Feb. 2023*
Undergraduate Research Intern Seoul, South Korea
– Presented a paper review on the state-of-the-art MFA-Conformer in the speaker verification field at that time.
- **Deep Learning Specilization Course by Andrew Ng, Coursera** *Dec. 2021 - Feb. 2022*
5 courses Online
– Built neural network architectures such as CNNs, RNNs, LSTMs, Transformers.
– Learned Dropout, BatchNorm and Xavier/He initialization.
– Tackled real-world cases such as speech recognition, music synthesis, chatbots, machine translation, natural language processing and more.
- **Republic of Korea Defense Communication Command, Republic of Korea Air Force** *Sep. 2019 - Jun. 2021*
Signalman, Squad Leader, Staff Sergeant Osan Air Base, South Korea
– Operated and maintained a robust Wide Area Communication System to facilitate efficient and secure communication across large geographic areas.
– Led a squad of 12 members, ensuring effective communication, coordination, and mission accomplishment.
– Discharged with the rank of staff sergeant.

PROJECTS

- **Practical Problem Research Group 2025.** Research on heterogeneous control including reinforcement learning and model predictive control on 4 legged robots. Funded by University of Seoul. (*Aug. 2025 - Present*)
- **Development of real-time vehicle dynamics learning and sharing technology for adaptive and predictable cooperative autonomous driving.** Research on developing a real-time dynamics learning for cooperative train driving. Joint research with Korea Railroad Research Institute. (*Apr. 2025 - Present*)

TECHNICAL SKILLS

Languages: English (B2), Korean (Native), Chinese (A2), Japanese (A2).

Programming: Python, MATLAB, R, SAS, C/C++, Java, C#, JavaScript.

Frameworks: PyTorch, TensorFlow.

PUBLICATIONS

- **[Paper] Sungjun Eom**, Gyunghoon Park, "Differential Dynamic Programming for the Optimal Control Problem with an Ellipsoidal Target Set and Its Statistical Inference " in 25th International Conference on Control, Automation and Systems (ICCAS) 2025.
- **[Paper] Jae-Seok Jang**, Bon-Jae Ku, **Sung-Jun Eom**, Ji-Hyeong Han, "Malware detection methodology through on pre-training and transfer learning for AutoEncoder based deobfuscation" in KIPS 2022.