



Jaeryeong Kim

Nationality: South Korean (Republic of Korea), American **Date of birth:** 04/06/2001

Phone number: (+41) 765302127 **Email address:** jaerkim@student.ethz.ch

Email address: jaeryeongkim01@gmail.com

Website: <https://nicolejrkim.github.io/>

Home: Bahnhaldenstrasse 9, 8052 Zurich (Switzerland)

EDUCATION AND TRAINING

M.S. in Robotics, Systems, and Control

ETH Zurich [15/09/2025 – Current]

City: Zurich | **Country:** Switzerland | **Level in EQF:** EQF level 7

- Robotics and control systems (motion planning, whole-body control, legged locomotion, quadruped robots)
- Reinforcement learning and optimal control (deep RL, model predictive control, sampling-based MPC, MPPI)
- Machine perception and computer vision (SLAM, vision-language-action models)
- Physics-based simulation and deployment (MuJoCo, IsaacLab, ROS2, GPU-parallelized environments)
- Spatio-temporal motion retargeting and kino-dynamically feasible motion generation from keypoint trajectories

B.S. in Computer Science & Electrical and Electronic Engineering

Korea Advanced Institute of Science and Technology [02/03/2020 – 29/08/2025]

City: Daejeon | **Country:** South Korea | **Final grade:** Summa Cum Laude | **Level in EQF:** EQF level 7

- Computer science fundamentals (algorithms, data structures, operating systems, computer networks, math)
- Programming languages and formal methods (language specification, compiler design, automated test generation, engine bug detection)
- Electrical and electronic engineering (circuits, signals and systems, electromagnetics)
- Artificial intelligence and machine learning (deep learning, computational learning theory, reinforcement learning)
- Robotics and planning (hierarchical MCTS, task and motion planning, long-horizon problem solving)
- Systems programming (Rust, Scala, OCaml, socket programming, TCP/IP implementation)
- Research experience in program analysis and robotic manipulation planning

Exchange Student - Department of Computer Science

ETH Zurich

City: Zurich | **Country:** Switzerland | **Final grade:** GPA 5.76/6.0 | **Level in EQF:** EQF level 7

- Robotics and control systems (legged locomotion, reinforcement learning, motion planning)
- Machine learning and probabilistic AI (machine perception, probabilistic artificial intelligence)
- Research in unsupervised skill discovery and diversified gait pattern generation for quadruped robots
- Semester project in deep reinforcement learning (grade 6.0/6.0)

UC Berkeley – Summer Session,

UC Berkeley

City: Berkeley | **Country:** Switzerland | **Level in EQF:** EQF level 7

- Attended on a full scholarship awarded through the KAIST Presidential Fellowship (KPF)
- Coursework in Game Theory

WORK EXPERIENCE

ETH Robotic Systems Lab – Zurich, Switzerland

Semester Project

[09/03/2026 – Current]

- Conducting semester project on whole-body tactile sensing for reinforcement learning-based dynamic locomotion on the ANYmal quadruped robot

University research assistant

[15/09/2025 – Current]

- Research on spatio-temporal motion retargeting (STMR) and whole-body control for humanoid
- Integrating sampling-based MPC and MPPI methods using GPU-parallelized physics simulation (MuJoCo) for kinodynamically feasible motion generation from keypoint trajectories

University research assistant

[14/02/2024 – 14/02/2025]

Diversifying Gait Patterns using Unsupervised Skill Discovery

- Implement unsupervised skill discovery methods with discrete latent variable inspired by cutting-edge papers (DIAYN & DISDAIN) and for continuous latent variables (ASE, METRA), to encode skills into a latent space for control.
- Trained a policy that allows for controlling height, gait patterns, pitch angle, and feet width in quadruped locomotion.
- Gained Experience on IsaacLab, Python, ROS2, and Reinforcement Learning

Learning and Demonstrating Multi-gait Quadruped Locomotion for Interactive Media Art Exhibition

- Develop a reinforcement learning (RL)-based locomotion controller capable of producing expressive gait patterns.
- Implement and successfully deploy RL-based controller for use in a live setting.
- Used for the AATB artistic studio's exhibition

University research assistant

[09/06/2023 – 28/08/2023]

- Design the hierarchical MCTS algorithm in detail, which conducts MCTS search in hierarchy.
- Implement the hierarchical MCTS algorithm, applied the algorithm to simple toy domain, maze domain, then to a task and motion planning domain.

University research assistant

[20/12/2021 – 14/06/2023]

- Conducted research on "JavaScript and Test262 improvements and engine bug detection using automatically generated test cases" as part of the Undergraduate Research Program (URP).
- Developed code to automatically test each JavaScript engine with Test262 test cases using Scala and check if the failing cases are covered by the Feature Sensitivity Coverage standard in Test262.
- Gained experience on Rust, Scala, Java, OCaml

PROJECTS

[15/09/2025 – 05/01/2026]

Visual Odometry Developed a monocular Visual Odometry pipeline for real-time camera pose estimation using KLT feature tracking, PnP-based localization, and landmark triangulation. Enhanced the baseline system with Local Bundle Adjustment, ground plane scale correction using SAM3 segmentation, and Sim(3)-based loop detection and closure, evaluated on the KITTI dataset.

Link: https://github.com/nicolejrkim/va25_project

[02/03/2025 – 10/06/2025]

DCASE 2020 Task 2

- Developed models for detecting anomalous machine sounds using unsupervised learning for condition monitoring.
- Implemented advanced architectures (e.g., NoisyArcMix, SpecNet) and applied feature normalization and model ensembling, improving AUC by 2.14%.

Link: https://github.com/nicolejrkim/ee488_DCASE2020-Task2

SKILLS

Simulation and Frameworks

NVIDIA Isaac Sim / Isaac Lab / MuJoCo / ROS2

Robot Hardware

Unitree Go2 / Unitree G1

Machine Learning & Computer Vision

PyTorch / Anomaly Detection / Model Ensembling / Bayesian Optimization / Visual odometry

Development

C++ / C / C# / Git / Linux / Python

Reinforcement Learning

Deep Reinforcement Learning / Unsupervised Skill Discovery / Sim-to-Real Transfer

Robotics & Control

Sampling-Based MPC / Model Predictive Path Integral (MPPI) / Robot Locomotion Control / Whole-Body Control / Motion Retargeting

HONOURS AND AWARDS

[02/03/2020] Korea Student Aid Foundation

Korea Presidential Science Scholarship National merit-based scholarship awarded by the Korean government to top science and engineering undergraduates, covering full tuition.

[02/03/2020] Korea Advanced Institute of Science and Technology (KAIST)

KAIST Presidential Fellowship (KPF) Korea Advanced Institute of Science and Technology (KAIST) Prestigious institutional fellowship for top-performing KAIST students, including funded study abroad at UC Berkeley.

[02/03/2022] Korea Foundation for Advanced Studies (KFAS)

Korea Foundation for Advanced Studies (KFAS) Scholarship Selective scholarship for high-achieving university students with strong research potential in science and technology.

[01/03/2021] Hanseong Foundation

Hanseong Nobel Youngsoojae Scholarship Hanseong Foundation (한성재단) Merit-based scholarship recognizing outstanding academic achievement during high school.

Korea Advanced Institute of Science and Technology (KAIST)

College of Engineering's Dean's List

Samsung Electronics

Samsung HumanTech Paper Award (High School Division), Gold Prize Gold Prize for research on a graph kernel algorithm for compound property prediction. Nationally recognized research competition organized by Samsung Electronics.

LANGUAGE SKILLS

Mother tongue(s): Korean

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user