Jun-Gill Kang

Email: jungillkang@gmail.com, Webpage:https://jgkang1210.github.io/, Youtube: click, Scholar: click

EDUCATION

Pohang University of Science and Technology – POSTECH *Pohang, South Korea*
Convergence IT Engineering, Mechanical Engineering (Double major), BSc *Mar. 2019 – Feb. 2022*
GPA:4.09/4.3(3.92/4.0), Major:4.20/4.3(3.96/4.0)**(1st/9)** **Summa Cum Laude**
Graduate representative (1st/All U.G.)

State University of New York at Stony brook (SUNY) *Jul. 2019 – Dec. 2019*
GPA:3.96/4.0 - Courses for Math, Physics, Liberal Arts *Half year full funding scholarship*

PUBLICATIONS

*indicates equal contribution

Refereed Journal Article

1. Agile perceptive multi-skill locomotion for quadrupedal robots in the wild
Jun-Gill Kang*, Jaehyun Park*, Tae-Gyu Song, Joon-Ha Kim, Seungwoo Hong**, and Hae-Won Park**
Submitted to Science Robotics (Under Rebuttal), Review Rate : under 20 % Video : click

2. A highly maneuverable flying squirrel drone with agility-improving foldable wings
Dohyeon Lee*, **Jun-Gill Kang***, and Soohee Han
IEEE Robotics and Automation Letters (**RA-L**) with IROS, 2025 Page : click

3. Task-Oriented Occupancy Grid Mapping through Active Data Management
Jinche La, **Jun-Gill Kang**, and Dasol Lee
IEEE Robotics and Automation Letters (**RA-L**), 2025 Video : click

4. Development of Dual-Unit Ceiling Adhesion Robot System With Passive Hinge for Obstacle Traversal Under Kinodynamic Constraints
Young-woon Song, **Jun-Gill Kang**, and Son-Cheol Yu
IEEE Access, 2023 Page : click

Refereed Conference Proceedings

5. Disentangled Multi-Context Meta-Learning: Unlocking robust and Generalized Task Learning
Seonsoo Kim*, **Jun-Gill Kang***, Taehong Kim, and Seongil Hong
Conference of Robot Learning (**CoRL**), 2025 Page : click

6. A Highly Maneuverable Flying Squirrel Drone with Controllable Foldable Wings
Jun-Gill Kang*, Dohyeon Lee*, and Soohee Han
IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2023 Page : click

7. Development of Safety-Inspection-Purpose Wall-Climbing Robot Utilizing Aerial Drone with Lifting Function
Young-woon Song, Taesik Kim, Meungsuk Lee, Sehwan Rho, Jason Kim, **Jun-Gill Kang**, and Son-Cheol Yu.
The 18th International Conference on Ubiquitous Robots (UR), 2021

Conference Workshop & Technical Papers

8. PointNT:Point Navigation Transformer
Jun-Gill Kang*, Taehong Kim*, Seonsoo Kim, Jihong Min, Seongil Hong and Kiho Kwak
IEEE/RSJ International Conference on Intelligent Robots and Systems Workshop (IROSW), 2025 Video : click

9. Fast, Perceptive Quadrupedal Locomotion in Complex Terrain
Jun-Gill Kang, Jaehyun Park, Tae-Gyu Song, and Hae-Won Park
IEEE International Conference on Robotics and Automation Workshop (ICRAW), 2024 Page : click

10. A Robust, Task-Agnostic and Fully-Scalable Voxel Mapping System for Large Scale Environments
Jinche La, **Jun-Gill Kang**, and Dasol Lee Video : click
arXiv preprint, 2024

RESEARCH EXPERIENCE

Computational Control Engineering Lab (CoCEL) *Pohang, South Korea*
Undergraduate Researcher 2022.02-2024.02
Advisor: Prof. Soohee Han

- **Project: Development of flying squirrel drone**
  – Board design and code implementation for drone hardware. Implement integral backtepping based Lyapunov stable controller. Implement onboard Kalman filter for attitude state estimation.
  – Implement simulation for full SE(3) drone dynamics model using MATLAB ode45 integrator.
  – Collect data using Mocap and GPS for training neural net dynamics model.

Dynamic Robot Control and Design Lab (DRCD) *Daejeon, South Korea*
Researcher 2022.06-Current
Advisor: Prof. Hae-won Park

- **Project: Learning based perceptive quadrupedal robot locomotion in the wild terrain**
  – Impulse scaling law based Bezier curve trajectory optimization using newton's method for multi-gait quadrupedal running data generation.
  – Representation learning using Transformer VAE and finetuning with developed RL pipeline in Isaac gym for in house developed quadrupedal robot KAIST HOUND.

Defense AI R&D center, Agency For Defense Development (ADD) *Daejeon, South Korea*
First Lieutenant, Research Officer for National Defense 2023.06-2026.06(expected)

- **Project: Adaptive Path Planning Based on Situational Awareness and Dynamic Model Learning**
  – Researched model predictive path integral (**MPPI**) based control algorithm for off-road navigation.
  – Logging, training and deploying in real hardware, train ensemble based neural vehicle dynamics model.
- **Project: Autonomous Exploration Based on UGV-UAV Cooperative Operation**
  – Obtained Two KR patents regarding robotic exploration.
  – Implement, maintain the algorithms for heterogeneous multi-robot exploration in C++ and ROS2.
  – Hands on experiences for SLAM, LIO algorithms (CSLAM, FAST-LIO, LIO-SAM, IG-LIO, etc.).
- **Project: VLM based autonomous driving**
  – Training transformer models for robot navigation with VLM (CLIP, SigLIP2) with A100 clusters.

MEDIA & PRESS

Flying squirrel drone Pressed and interviewed from diverse international and domestic press. Informal interview from IEEE Spectrum (Evan Ackerman), New atlas (Cover), Tech Xplore (Cover), SBS (Korea major press), YTN (Korea major press) and many others.

AWARDS AND HONORS

Mu-Eun-Jae Award *Pohang University of Science and Technology (POSTECH)* 2022
Select one student every year among all total graduating students.

Talent Award of Korea *Deputy Prime Minister and Minister of Education award* 2020
For the sprite of challenge and continuous efforts on robotics. Select only 100 talented people every year in South Korea from diverse area (Athlete, Researcher, Talents, CEO, etc.)

Best undergraduate research *Pohang University of Science and Technology (POSTECH)* 2020-2022
Awarded every time for undergraduate research projects (4 times in a row)

GRANTS AND FELLOWSHIPS

Creative IT Engineering Scholarship, Korea Government 2019 - 2021
15K USD + Half year study abroad full funding (Stony brook University, NYC), 10 people in South Korea

Research Officers for National Defense Scholarship, Korea Government 2021-2023
15K USD, 20 people in South Korea

SERVICE TO PROFESSION

Reviewer for IROS (2024, 2025), CoRL (2025)

SKILLS

TOEFL 105 (R24, L30, S26, W25)
Python, C, C++, MATLAB, Issac gym, sim, lab, PyTorch, ROS2, ROS1, Docker, Git, OpenCV
Outreach & Communication: Create and manage personal research youtube channel (click) to communicate robotics research. 8,431,656 view total, over 13.1K subscribers now.