

Dongho Kang

Sumatrastrasse 11, Zurich 8092, Switzerland
kangd@ethz.ch • +41 78 677 90 49 • <https://donghok.me/>

RESEARCH INTERESTS

My research aims to create a legged robot that can perform natural, animal-like motion. Thus, my research interests are broad ranging to legged locomotion control, computational model of character animation and design optimization for robotics applications.

EDUCATION

ETH Zürich, Zurich, Switzerland

- Doctoral Student in Computer Science Apr 2020 – Present
 - Advisor: Prof. Dr. Stelian Coros
- M.Sc. ETH in Mechanical Engineering Sep 2016 – Aug 2019
 - Advisor: Prof. Dr. Marco Hutter
 - Graduated with distinction

Seoul National University, Seoul, South Korea

- B.Sc. in Mechanical Engineering and B.Sc. in Computer Science Mar 2009 – Aug 2016
 - Advisor: Prof. Dr. Dongjun Lee
 - Graduated with honor (Cum Laude)

RESEARCH EXPERIENCE

Computational Robotics Lab, ETH Zürich

- Scientific Assistant Dec 2019 – Present
 - Supervisors: Prof. Dr. Stelian Coros
 - Aim to build bio-inspired quadrupedal robots that perform more natural and animal-like motion.

Robotic Systems Lab, ETH Zürich

- Master's Student Sep 2017 – Nov 2019
 - Supervisors: David Höller, Dr. Jemin Hwangbo and Prof. Dr. Marco Hutter
 - Conducted the research on learning-based collision avoidance for a legged robot ANYmal.
 - Participated in the development of RaiSim: a physics engine for robotics and AI research.

Interactive & Networked Robotics Lab, Seoul National University

- Undergraduate Research Assistant Sep 2014 – Jan 2016
 - Supervisors: Prof. Dr. Dongjun Lee
 - Participated in the research on state estimation and control strategy for multi-robot cooperative systems

PROFESSIONAL AFFILIATIONS & ACTIVITIES

NVIDIA, Zurich, Switzerland

- Deep Learning Intern Jun 2018 – Dec 2018
 - Projects: Super-Resolution and Anti-aliasing methods based on deep learning.

LeisureQ Inc., Seoul, South Korea

- Web Developer Intern Jan 2016 – Sep 2016
 - Projects: Backend web application for E-commerce website Gajago: <http://www.thegajago.com>

CNP Technology Inc., Seoul, South Korea

- Hardware and CAD Engineer Jan 2016 – Sep 2016

PUBLICATIONS

CONFERENCES

- [1] Dongho Kang, Flavio De Vincenti, Naomi C. Adam, and Stelian Coros, “Animal Motions on Legged Robots Using Nonlinear Model Predictive Control,” in *International Conference on Intelligent Robots and Systems (IROS)*, Mar 2022 (submitted).
- [2] Dongho Kang, Simon Zimmermann, and Stelian Coros, “Animal Gaits on Quadrupedal Robots using Motion Matching and Model-Based Control,” in *International Conference on Intelligent Robots and Systems (IROS)*, Sep 2021.
- [3] Flavio De Vincenti, Dongho Kang, and Stelian Coros, “Control-Aware Design Optimization for Bio-Inspired Quadruped Robots,” in *International Conference on Intelligent Robots and Systems (IROS)*, Sep 2021.

- [4] Changu Kim, Hyunsoo Yang, Dongho Kang and Dongjun Lee, “2-D Cooperative Localization with Omni-Directional Mobile Robots,” in *International Conference on Ubiquitous Robots and Ambient Intelligence*, Goyang, South Korea, Oct 2015.

WORKSHOP

- [1] Dongho Kang, Flavio De Vincenti, and Stelian Coros, “Nonlinear Model Predictive Control for Quadrupedal Locomotion Using Second-Order Sensitivity Analysis,” in *ICRA 2022: 6th Full-Day Workshop on Legged Robots*, May 2022.

THESIS

- [1] Dongho Kang, “End-to-End Collision Avoidance from Depth Input with Memory-based Deep RL,” Master’s thesis, the Department of Mechanical and Process Engineering, ETH Zürich, Aug 2019.

INVITED TALK	▪ Robot Intelligence Lab, Korea University, Seoul, South Korea	Apr 2021
	▪ NAVER LABS Corp., Seoul, South Korea	Dec 2019
	▪ Max Planck ETH Center for Learning Systems Symposium, Tübingen, Germany	Feb 2019
AWARDS & SCHOLARSHIPS	▪ Birkigt Scholarship, ETH Zürich Stipendiary scholarship for international master student.	Feb 2018
	▪ Eminence Scholarship, Seoul National University Full-tuition scholarship for one academic semester for outstanding academic performance.	Aug 2014
	▪ Merit-based Scholarship, Seoul National University Half-tuition scholarship for one academic semester for outstanding academic performance.	Feb 2014
	▪ Development Fund Scholarship, Seoul National University Full-tuition scholarship for one academic year for outstanding academic performance.	Feb 2010
TEACHING EXPERIENCE	ETH Zürich , Zurich, Switzerland	
	▪ Teaching Assistant, Computational Models of Motion (Spring)	2021 – 2022
	▪ Teaching Assistant, Visual Computing (Autumn)	2020 – 2022
	Seoul National University , Seoul, South Korea	
	▪ Mentor, SNU Samsung Convergence Software Course Program	Jan 2015 – Dec 2015
	▪ Teaching Assistant, MAE 446.204A: Dynamics	Jan 2014 – Dec 2014
	▪ Teaching Assistant, PA 034.013: Basic Physics 2	Sep 2011 – Dec 2011
LANGUAGES	▪ Korean: Native language.	
	▪ English: Fluent (speaking, reading, writing).	
TECHNICAL SKILLS	Programming and Software C/C++, C#, Python, Matlab/Octave, Unix/Linux, Tensorflow, Pytorch, ROS, Open Dynamics Engine, Unity	
	Experience with Robots UnitreeRobotics Aliengo, A1, Go1, ANYbotics ANYmal,	
REFERENCES	▪ Prof. Dr. Stelian Coros Associate Professor in the Department of Computer Science ETH Zürich Stampfenbachstrasse 48 (Sumatrastrasse 11), 8092, Zurich, Switzerland scoros@inf.ethz.ch • +41 44 632 02 15	
	▪ Prof. Dr. Marco Hutter Associate Professor in the Department of Mechanical and Process Engineering ETH Zürich Leonhardstrasse 21, 8092 Zurich, Switzerland mahutter@ethz.ch • +41 44 632 74 17	

- **Prof. Dr. Jemin Hwangbo**
Assistant Professor in the Department of Mechanical Engineering
Korea Advanced Institute of Science and Technology
jhwangbo@kaist.ac.kr
- **Prof. Dr. Dongjun Lee**
Professor in the Department of Mechanical Engineering
Seoul National University
1 Gwanak-Ro, Gwanak-Gu, Seoul, 08826, South Korea
djlee@snu.ac.kr • +82 2 880 1724