

# Dongho Kang

Wasserwerkstrasse 12, Zurich 8006, Switzerland  
kangd@ethz.ch • +41 78 677 90 49 • <https://donghok.me/>

## RESEARCH INTERESTS

My research aims to create legged robots that produces natural and animal-like motions. Thus, my research interests are broad ranging to legged locomotion control, character animation and design optimization for robotics applications.

## EDUCATION

### ETH Zürich, Zurich, Switzerland

- Doctoral Student in Computer Science Apr 2020 – Present
  - Main advisor: Prof. Dr. Stelian Coros
  - Second advisor: Prof. Dr. Marco Hutter

- 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
  - Supervisor: Prof. Dr. Stelian Coros
  - Control methods for animal-like motions of bio-inspired quadrupedal robots.

### Robotic Systems Lab, ETH Zürich

- Master's Student Sep 2017 – Nov 2019
  - Supervisors: David Höller, Dr. Jemin Hwangbo and Prof. Dr. Marco Hutter
  - Learning-based collision avoidance for a legged robot.
  - 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
  - State estimation and control strategies for multi-robot cooperative systems

## PROFESSIONAL AFFILIATIONS & ACTIVITIES

### NVIDIA, Zurich, Switzerland

- Deep Learning Intern Jun 2018 – Dec 2018
  - Projects: Deep learning-based super-resolution and anti-aliasing.

### LeisureQ Inc., Seoul, South Korea

- Software Engineer Intern Jan 2016 – Sep 2016
  - Projects: Backend web application for E-commerce website Gajago.

### 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)*, Oct 2022.
- [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 Quadrapedal 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.

<b>INVITED TALK</b>	<ul style="list-style-type: none"> <li>▪ Robot Intelligence Lab, Korea University, Seoul, South Korea <span style="float: right;">Apr 2021</span></li> <li>▪ NAVER LABS Corp., Seoul, South Korea <span style="float: right;">Dec 2019</span></li> <li>▪ Max Planck ETH Center for Learning Systems Symposium, Tübingen, Germany <span style="float: right;">Feb 2019</span></li> </ul>
<b>AWARDS &amp; SCHOLARSHIPS</b>	<ul style="list-style-type: none"> <li>▪ Birkigt Scholarship, ETH Zürich <span style="float: right;">Feb 2018</span> Stipendiary scholarship for international master student.</li> <li>▪ Eminence Scholarship, Seoul National University <span style="float: right;">Aug 2014</span> Full-tuition scholarship for one academic semester for outstanding academic performance.</li> <li>▪ Development Fund Scholarship, Seoul National University <span style="float: right;">Feb 2010</span> Full-tuition scholarship for one academic year for outstanding academic performance.</li> </ul>
<b>TEACHING EXPERIENCE</b>	<p><b>ETH Zürich</b>, Zurich, Switzerland</p> <ul style="list-style-type: none"> <li>▪ Teaching Assistant, Linear Algebra (Ö. Imamoglu, O. Sorkine-Hornung) <span style="float: right;">Autumn 2022</span></li> <li>▪ Teaching Assistant, Computational Models of Motion (S. Coros, B. Thomaszewski) <span style="float: right;">2021 – 2022</span></li> <li>▪ Teaching Assistant, Visual Computing (S. Coros, M. Pollefeys) <span style="float: right;">2020 – 2022</span></li> </ul> <p><b>Seoul National University</b>, Seoul, South Korea</p> <ul style="list-style-type: none"> <li>▪ Mentor, SNU Samsung Convergence Software Course Program <span style="float: right;">2015</span></li> <li>▪ Teaching Assistant, MAE 446.204A: Dynamics <span style="float: right;">2014</span></li> <li>▪ Teaching Assistant, PA 034.013: Basic Physics 2 <span style="float: right;">Autumn 2011</span></li> </ul>
<b>LANGUAGES</b>	<ul style="list-style-type: none"> <li>▪ Korean: Native language.</li> <li>▪ English: Fluent.</li> </ul>
<b>TECHNICAL SKILLS</b>	<p><b>Programming and Software</b> C/C++, C#, Python, Matlab/Octave, Unix/Linux, Tensorflow, Pytorch, ROS, Open Dynamics Engine, Unity</p> <p><b>Experience with Robots</b> UnitreeRobotics Aliengo, A1, Go1, ANYbotics ANYmal</p>
<b>REFERENCES</b>	<ul style="list-style-type: none"> <li>▪ <b>Prof. Dr. Stelian Coros</b> 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</li> <li>▪ <b>Prof. Dr. Marco Hutter</b> 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</li> </ul>

- **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