

Dongho Kang

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RESEARCH INTERESTS

The goal of my research is to broaden the skill set of humanoid robots and enhance their ability to generate natural and versatile behaviors by integrating advanced control strategies with data-driven character animation techniques.

PROFESSIONAL AFFILIATIONS & ACTIVITIES

RAI Institute, Zurich, Switzerland

- Research Scientist Jun 2025 – Present
 - Led research on data-driven control frameworks to achieve for natural and steerable humanoid whole-body behaviors.
 - Developed robust perceptive locomotion control pipelines for legged systems.

NVIDIA, Zurich, Switzerland

- Deep Learning Intern Jun 2018 – Dec 2018
 - Explored and developed deep learning algorithms for super-resolution and anti-aliasing within the DLSS pipeline.

CNP Technology Inc., Seoul, South Korea

- Hardware Engineer Dec 2011 – Mar 2014
 - CAD-designed enclosures and managed end-to-end manufacturing processes for industrial and embedded PCs.

EDUCATION

ETH Zürich, Zurich, Switzerland

- Doctor of Science in Computer Science Apr 2020 – Aug 2025
 - Main advisor: Prof. Dr. Stelian Coros
 - Second advisor: Prof. Dr. Marco Hutter
 - Topic: motion data-driven legged locomotion control via reinforcement learning and optimal control.
- Master of Science in Mechanical Engineering Sep 2016 – Aug 2019
 - Advisor: Prof. Dr. Marco Hutter
 - Topic: physics simulation for legged robotics applications and reinforcement learning-based navigation

Seoul National University, Seoul, South Korea

- Bachelor of Science in Mechanical Engineering & Computer Science Mar 2009 – Aug 2016
 - Advisor: Prof. Dr. Dongjun Lee

PUBLICATIONS AND PATENTS

JOURNALS

- [1] Mike Zhang, Dongho Kang, Kevin Bergamin (co-first authors); advised by Alfred Rizzi, Jessica Hodgins, Scott Kuindersma, Yeuhi Abe, Sylvain Bertrand, and Farbod Farshidian, “HuMBLE: Human Motion-Driven Behavior Learning for Embodied Locomotion,” 2026 (under review.)
- [2] Taein Kwon, Ergys Ristani, Dongho Kang, Marc Pollefeys, and Li Guan, “Glove-based Microgesture Recognition Using Egocentric Vision and IMU Fusion,” in *IEEE Robotics and Automation Letters (RA-L)*, 2026 (accepted.)
- [3] Matthias Heyrman, Chenhao Li, Victor Klemm, Dongho Kang, Stelian Coros, and Marco Hutter, “Multi-Domain Motion Embedding: Expressive Real-Time Mimicry for Legged Robots,” in *The International Journal of Robotics Research (IJRR)*, 2026 (accepted.)
- [4] Lukas Molnar, Jin Cheng, Gabriele Fadini, Dongho Kang, Fatemeh Zargarbashi, and Stelian Coros, “Whole-body Inverse Dynamics MPC for Legged Loco-manipulation,” in *IEEE Robotics and Automation Letters (RA-L)*, Nov 2026.
- [5] Jin Cheng, Dongho Kang, Gabriele Fadini, Guanya Shi, and Stelian Coros, “RAMBO: RL-augmented Model-based Optimal Control for Whole-body Loco-manipulation,” in *IEEE Robotics and Automation Letters (RA-L)*, Sep 2025.
- [6] Taerim Yoon, Dongho Kang, Seungmin Kim, Jin Cheng, Minsung Ahn, Stelian Coros, and Sungjoon Choi, “Spatio-Temporal Motion Retargeting,” in *IEEE Transactions on Robotics (T-RO)*, Aug 2025.
- [7] Dongho Kang, Jin Cheng, Miguel Zamora, Fatemeh Zargarbashi, and Stelian Coros, “RL + Model-based Control: Using On-demand Optimal Control to Learn Versatile Legged Locomotion,” in *IEEE Robotics and Automation Letters (RA-L)*, Oct 2023.

CONFERENCES

- [1] Taerim Yoon, Dongho Kang, Kisang Park, Junha Cha, Stelian Coros, Sungjoon Choi, “Learning Unions of Convex Sets via Invertible Latent Decomposition for Path Planning,” in *Conference on Robot Learning (CoRL)*, 2026.
- [2] Taerim Yoon, Dongho Kang, Jin Cheng, Fatemeh Zargarbashi, Yijiang Huang, Minsung Ahn, Stelian Coros, and Sungjoon Choi, “Teaching Robots Like Dogs: Learning Agile Navigation from Luring, Gesture, and Speech,” in *Conference on Robot Learning (CoRL)*, 2026.
- [3] Yarden As, Chengrui Qu, Benjamin Unger, Dongho Kang, Max van der Hart, Laixi Shi, Stelian Coros, Adam Wierman, Andreas Krause, “SPiDR: A Simple Approach for Zero-Shot Safety in Sim-to-Real Transfer,” in *Neural Information Processing Systems (NeurIPS)*, 2025.
- [4] Fatemeh Zargarbashi, Jin Cheng, Dongho Kang, Robert Sumner, and Stelian Coros, “RobotKeyframing: Learning Locomotion with High-Level Objectives via Mixture of Dense and Sparse Rewards,” in *Conference on Robot Learning (CoRL)*, 2024.
- [5] Adrian Hartmann, Dongho Kang, Fatemeh Zargarbashi, Miguel Angel Zamora Mora, and Stelian Coros, “Deep Compliant Control for Legged Robots,” in *International Conference on Robotics and Automation (ICRA)*, 2024.
- [6] Daniel Widmer, Dongho Kang (co-first authors), Bhavya Sukhija, Jonas Hübötter, Andreas Krause, and Stelian Coros, “Tuning Legged Locomotion Controllers via Safe Bayesian Optimization,” in *Conference on Robot Learning (CoRL)*, 2023.
- [7] 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)*, 2022.
- [8] 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)*, 2021.
- [9] 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)*, 2021.
- [10] 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*, 2015.

THESIS

- [1] Dongho Kang, “Animal Motion Imitation For Adaptive and Lifelike Control of Legged Robots,” Doctoral thesis, Department of Computer Science, ETH Zürich, 2025.
- [2] Dongho Kang, “End-to-End Collision Avoidance from Depth Input with Memory-based Deep RL,” Master’s thesis, Department of Mechanical and Process Engineering, ETH Zürich, Aug 2019.

PATENTS

- [1] Fatemeh Zargarbashi, Robert Walker Sumner, Jin Cheng, Dong Ho Kang, Stelian Coros, “Methods and systems for robot keyframing and learning locomotion with high-level objectives,” US Patent, 2024 (under review.)

INVITED TALK

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|---|----------|
| ▪ Institute of Robotics and Mechatronics, German Aerospace Center (DLR)
Oberpfaffenhofen-Weßling, Germany | Jul 2026 |
| ▪ Illinois Robotics Group, University of Illinois at Urbana-Champaign
Champaign-Urbana, Illinois, United States (online) | Mar 2026 |
| ▪ Laboratory for Intelligent Decision and Autonomous Robots, Georgia Tech
Atlanta, Georgia, United States | Feb 2026 |
| ▪ Department of Artificial Intelligence, Korea University
Seoul, South Korea | Jan 2026 |
| ▪ Department of Computer Science and Engineering, Seoul National University
Seoul, South Korea | Jan 2026 |

	- Machine Perception for Human Understanding, AI+X Summit 2025 Zurich, Switzerland - Department of Mechanical Engineering, Seoul National University Seoul, South Korea (online) - Artificial Intelligence Graduate School, UNIST Ulsan, South Korea (online) - Biomimetic Robotics Lab, Massachusetts Institute of Technology Cambridge, Massachusetts, United States (online) - Johou Systems Kougaku Laboratory, University of Tokyo Tokyo, Japan - Suzumori Laboratory, Tokyo Institute of Technology Tokyo, Japan	Oct 2025 Oct 2025 Oct 2025 Aug 2024 May 2024 May 2024
TEACHING EXPERIENCE	ETH Zürich, Zurich, Switzerland - Teaching Assistant, Stochastics and ML (A. Streich, C. Cotrini, F. Friedrich) - Teaching Assistant, Introduction to Machine Learning (F. Perez-Cruz, F. Yang) - Teaching Assistant, Computer Science (M. Fischer, F. Friedrich) - Teaching Assistant, Digital Humans (S. Coros, Siyu Tang) - Teaching Assistant, Linear Algebra (Ö. Imamoglu, O. Sorkine-Hornung) - Teaching Assistant, Computational Models of Motion (S. Coros, B. Thomaszewski) - Teaching Assistant, Visual Computing (S. Coros, M. Pollefeys) Seoul National University, Seoul, South Korea - Mentor, SNU Samsung Convergence Software Course Program - Teaching Assistant, MAE 446.204A: Dynamics - Teaching Assistant, PA 034.013: Basic Physics 2	Spring 2025 2024 2023 2023 2022 2021 – 2022 2020 – 2021 2015 2014 2011
TECHNICAL SKILLS	Programming and Software C/C++, Python, Matlab, Unix/Linux, Pytorch, ROS, Open Dynamics Engine, IsaacSim, MuJoCo Experience with Robots UnitreeRobotics AlienGo/A1/Go1/Go2/B2/G1, ANYbotics ANYmal, Boston Dynamics Atlas	
SERVICES	Reviewer T-RO, T-RL, TIE, RA-L, ICRA, IROS, RSS, CoRL, Humanoids, BioRob, Eurographics	
LANGUAGES	- Korean: Native language. - English: Fluent.	
REFERENCES	Prof. Dr. Stelian Coros Associate Professor, ETH Zürich scoros@inf.ethz.ch Prof. Dr. Marco Hutter Professor, ETH Zürich / Senior Director, RAI Institute mahutter@ethz.ch Prof. Dr. Dongjun Lee Professor, Seoul National University djlee@snu.ac.kr	