DAEGYU LIM

Ph.D Candidate
dgyo3784@gmail.com
daegyulim.github.io

EDUCATION

- **Ph.D Candidate in Transdisciplinary Studies** Mar. 2017 - Present
  Seoul National University, Seoul, Republic of Korea
- **B.A in Mechanical and Aerospace Engineering** Mar. 2012 - Feb. 2017
  Seoul National University, Seoul, Republic of Korea

PUBLICATIONS

- **Daegyu Lim**, Myeong-Ju Kim, Junhyeok Cha, and Jaeheung Park. "MOB-Net: Limb-modularized Uncertainty Torque Learning of Humanoids for Sensorless External Torque Estimation." 2023. (Submitted to IJRR)
- **Daegyu Lim**, Myeong-Ju Kim, Junhyeok Cha, Donghyeon Kim, and Jaeheung Park. "Proprioceptive External Torque Learning for Floating Base Robot and its Applications to Humanoid Locomotion." *2023 IEEE/RSJ international conference on intelligent robots and systems (IROS)*. IEEE, 2023.
- Myeong-Ju Kim, **Daegyu Lim**, Gyeongjae Park, and Jaeheung Park. "A Model Predictive Capture Point Control Framework for Robust Humanoid Balancing via Ankle, Hip, and Stepping Strategies" *arXiv preprint arXiv:2307.13243*. arXiv, 2023. (Submitted to T-RO)
- Myeong-Ju Kim, Mingon Kim, **Daegyu Lim**, Eunho Sung, and Jaeheung Park. "Disturbance Adapting Walking Pattern Generation Using Capture Point Feedback Considering CoM Control Performance." *Journal of Intelligent & Robotic Systems*. 2023.
- Myeong-Ju Kim, **Daegyu Lim**, Gyeongjae Park, and Jaeheung Park. "Foot Stepping Algorithm of Humanoids with Double Support Time Adjustment based on Capture Point Control." *2023 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE, 2023.
- Myeong-Ju Kim, **Daegyu Lim**, Gyeongjae Park, and Jaeheung Park. "Humanoid Balance Control using Centroidal Angular Momentum based on Hierarchical Quadratic Programming." *2022 IEEE/RSJ international conference on intelligent robots and systems (IROS)*. IEEE, 2022.
- **Daegyu Lim**, Donghyeon Kim, Jaeheung Park. "Online Telemanipulation Framework on Humanoid for both Manipulation and Imitation." *2022 19th International Conference on Ubiquitous Robots (UR)*. IEEE, 2022. (*Best Application Paper Award)
- Donghyeon Kim*, **Daegyu Lim***, and Jaeheung Park. "Transferable Collision Detection Learning for Collaborative Manipulator Using Versatile Modularized Neural Network." *IEEE Transactions on Robotics*. 2021. (*equal contribution)
- **Daegyu Lim***, Donghyeon Kim*, Jaeheung Park. "Momentum Observer-Based Collision Detection Using LSTM for Model Uncertainty Learning." *2021 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE, 2021. (*equal contribution)
- Mingon Kim, **Daegyu Lim**, and Jaeheung Park. "Online walking pattern generation for humanoid robot with compliant motion control." *2019 International Conference on Robotics and Automation (ICRA)*. IEEE, 2019.

EXPERIENCE

- ANA AVATAR XPRIZE, Team SNU, Student Leader (Jan. 2020 - Jan. 2022), Control System Leader (Feb. 2022 - Nov. 2022).
- CES 2022 Exhibition, *Humanoid Teleoperation System*, Jan. 2022.

PATENTS

- Jaeheung Park, **Daegyu Lim**, Donghyeon Kim, "Remote control method of motion tracking robot", WIPO Patent Application (PCT/KR2022/021367), filed December 2022. Patent Pending.
- Jaeheung Park, Donghyeon Kim, **Daegyu Lim**, "Apparatus and method for robot control", Korea Patent Application (1020220185831), filed December 2021. Patent Pending.

AWARDS

- **Best Application Paper Award** in the 19th International Conference on Ubiquitous Robots (UR 2022).

SCHORLARSHIP

- **Samsung Electronics Ph.D Student Sponsorship Program** at Device Solutions (2022. 09).
- **National Science & Technology Scholarship** from Korea Student Aid Foundation (2014).

RESEARCH SKILLS

Computer Languages	C/C++, Python, Matlab
Simulator	MuJoCo, Isaac Gym, CoppeliaSim
Library	Pytorch, Tensorflow, RBDL, qpOASES, Pinocchio
Theory	Spatial Kinematics, Rigid Body Dynamics, Convex Optimization, Optimal Control(Linear/Non-linear), MPC, Deep Learning, Imitation Learning, Reinforcement Learning, State Estimation