Dong Ho Kang **dokkev.github.io**

CONTACTS
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EDUCATION

University of Texas at Austin, Austin, TX, USA
PhD in Mechanical Engineering, Currently Enrolled

Northwestern University, Evanston, IL, USA
Master of Science in Robotics, December 2021

Saint Louis University, St.Louis, MO, USA
Bachelor of Science in Mechanical Engineering, May 2020

RESEARCH

PLATO Project: Design and Control for Safe and Versatile Telemanipulation
The University of Texas at Austin | 08/2023 - current
- **Trajectory Optimization** and **IHWBC** of 7-DoF SEA controlled robotic arm and 9-DoF hands for whole body manipulation tasks with complex contact handling
- Hybrid task and joint space upper body grasping teleoperation via hand exoskeleton with assistive shared control and haptic rendering
- Hardware design of real-time controlled 9-DoF robotic hand with **CAN** and **Linix rt-preempt**, **FreeRTOS**

https://dokkev.github.io/projects/platov2/

DRACO3 Whole Body Loco-manipulation
The University of Texas at Austin | 10/2022 - Current
- DRACO3 locomotion experiments with **DCM Plannner** footstep planning with QP-based optimal controller: **IHWBC** and **WBIC**
- Implementing Whole Body Manipulation Control by combining the SRB model and **Whole Body Orientation** into **convex MPC** for versatile manipulation motion
- DRACO3 hardware improvement: ATI FT-sensor integration, **EtherCAT** based Motor Driver replacement (Synapticon, Copley)

*SH. Bang, C. Gonzalez, G. Moore, **DH. Kang**, M. Seo, and L. Sentis, "RPC: A Modular Framework for Robot Planning, Control, and Deployment," IEEE International Symposium on System Integration (SII) 2025 (To appear)*

Person-Carrying Autonomous Robot for Contact Compliant Navigation
The University of Texas at Austin | 09/2022 - 09/2023
- Integrated low-level base controller and torque sensor of a tri-wheel omnidirectional robot.
- Implemented navigation stack using **TEBLocalPlanner, MoveBase, SLAM Toolbox**
- **Sensor fusion** of Lidar, RGBD, and IMU with EKF for improved localization

*Gonzalez, C, Lee, S, Montano, F, Ortega, S, **Kang, DH**, Jaiswal, M, Jiao, J, & Sentis, L. "Design of a Person-Carrying Robot for Contact Compliant Navigation." Proceedings of the ASME 2023 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference.*

WORK

Research Intern
UT Austin & Sony Group Corporation | Austin, TX & Toyko, Japan | 06/2024 - 08/2024
- **design optimization** of a **linkage driven hand** for workspace and control linearity
- Replication and hardware improvement of UT PLATO Hand at Sony Tokyo
- **ros2-control** based high bandwidth **real-time impedance control** over **CAN**

Research Intern
HQ Tech | Daejeon, South Korea | 05/2017 - 08/2017
- Quadcopter **UAV control** for the reservoir flow measurement
- Presented water flow measuring UAV design at R&D Special Zone Technology Exposition at Daejeon Convention Center

Technical Skills

Programming & Software: C, C++, Python, MATLAB/Simulink, Linux, Git

Control Frameworks: Pinocchio, Crocoddyl, CasADi, OMPL, OCS2, ModernRobotics

Learning Frameworks: Isaac Gym, Isaac Lab, Robosuite, OpenAI Gym

Simulation: Drake, MuJoCo, Gazebo Classic & Ignition, PyBullet, Issac Sim, CoppeliaSim

Embedded System: FreeRTOS, ArduinoIDE, STM32CubeIDE, CAN, EtherCAT, RS485

CAD/FEA: Creo, Abaqus, Ansys, Solidworks, EAGLE

Robot Hardware Experience: Apptronik DRACO3, Roboligent Optimo, Franka Emika Research 3 (Panda), Boston Dynamics Spot, Rethink Robotics Baxter & Sawyer, HDT Adroit A24, CLEARPATH Robotics Jackal

Teaching Experience

Mechatronics Lab (ME 140L) TA
Unviersity of Texas at Austin | 08/2022 - 12/2022

Mechanical Engineering Lab (MENG 3001) TA
Saint Louis University | 01/2020 - 05/2020

Academic Tutor
Firm Foundation Tutoring Program | 09/2016 - 03/2020

- Worked on course syllabi, study guides, assessments, and other additional documents that assist students in the grades of 4 to 9 for their academic success
- Taught Physical Science, and Algebra, Writing composition (grammar), Reading literature

Honors and Awards

Grand Challenges Scholar, National Academy of Engineering, 2020

Parks College Innovation Challenge 1st Place, Saint Louis University, 2018

Dean's List, Saint Louis University, 2018

Relevant Coursework

Robotic Manipulation	Embedded Systems in Robotics
Sensing, Navigation, and ML	Design and Control of Humanoid
Advanced Mechatronics	Sensory Acquisition
Brain, Body, and Robotics	Haptics and Teleoperated Sytstems

Language Skills

English: Native

Korean: Native