

CHUIZHENG KONG

PhD Student in Robotics - Georgia Institute of Technology

✉ ckong35@gatech.edu

in <https://www.linkedin.com/in/kongc2>

🔗 [kcztm.github.io](https://github.com/kcztm)

🌐 sew-mimic.com

EDUCATION

- M.S. Electrical Engineering, Rensselaer Polytechnic Institute (thesis advisor: Prof. John T. Wen) 2023
Thesis: *Design and Control of a Nonprehensile Impulse Manipulator* [Proquest Link]
- B.S. Mechanical Engineering, Rensselaer Polytechnic Institute (research advisor: Prof. Sergio Pequito) 2021

RESEARCH WORKS

Closed-Form Pose-Retargeting for Humanoid Robot Teleoperation with Meta Quest3 Support [Link]

📅 July 2025 - current

📍 Georgia Tech, Atlanta GA

- Created one of the fastest (9000 Hz on Rust) human-robot pose-retargeting algorithm (Patent Pending)
- Created a Mujoco digital twin simulation environment for Unitree G1, Rainbow RB-Y1, Fourier GR-1, Dual-Kinova3 7DoF
- Created two applications capturing human pose: 1) Mediapipe (Google DeepMind) 2) Inside-out Body Tracking (Meta Quest 3)
- Hardware Implimentation on RB-Y1 and Dual-Kinova3 7DoF

Autonomous Robotic Pollination and Microscopic Inspection

📅 May 2024 - August 2024

📍 Georgia Tech, Atlanta GA, & USDA ARS, Charleston SC

- Led a hardware development team on the R&D of a novel vibratory pollination system with an auto-focusing microscope, RGB-D camera, and a 7-DoF Robot arm.
- Developed a perception, planning, and control algorithm pipeline that unit the above mentioned hardware to perform robot navigation, flower recognition and pollination, and microscopic inspection.
- The work was demoed in a [workshop], featured in an [interview], and a [paper] was submitted to ICRA 2024.

Goal-Reaching Trajectory Design Near Danger with Piecewise Affine Reach-avoid Computation

📅 Sep 2023 - Mar 2024

📍 Georgia Tech, Atlanta GA

- Designed a hybrid MPC + nonlinear PD controller for a dynamic vehicle simulation model in performing parallel drift parking featured in the [2014 Guinness World Records]
- Implemented a piecewise affine back reach-avoid set planner on the controller mentioned above to create a "safe starting zone" where the simulated vehicle can safely drift between two tightly parked cars.
- The work was accepted and presented in RSS'24.

SELECTED PUBLICATION AND PATENT

- C. Kong, Y. Cho, W. Jung, I. Wibowo, P. Shinde, S. Vinodh-Sangeetha, L. K. Chung, Z. Chen, A. Mattei, A. Nidumukkala, A. Elias, D. Xu, T. Higgins, and S. Kousik. "A Closed-Form Geometric Retargeting Solver for Upper Body Humanoid Robot Teleoperation." arXiv preprint arXiv:2602.01632 (2026). [Arxiv Link]
- Chung, L. K., W. Jung, C. Kong, and S. Kousik. "Goal-Reaching Trajectory Design Near Danger with Piecewise Affine Reach-avoid Computation." arXiv preprint arXiv:2402.15604 (2024). [Arxiv Link]
- Yerazunis, W., C. Kong, and D. Nikovski. "Systems and Methods for Object Orientation and Manipulation Via Machine Learning Based Control." U.S. Patent Application 18/165,641, filed August 8, 2024. [Patent Link]

ACADEMIC SERVICE

- Reviewer, IEEE Robotics and Automation Letters (RA-L)
- Reviewer, The International Journal of Robotics Research (IJRR)