ZHENGYANG KRIS WENG

https://wengmister.github.io/

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EDUCATION

Northwestern University, M.S. in Robotics *Sep 2024 – Sep 2025 (Expected)*, Evanston, IL

Georgia Institute of Technology, B.S. in Mechanical Engineering *Sep 2016 – May 2021*, Atlanta, GA

EMPLOYMENT

Senior Mechanical Engineer, Johnson & Johnson *Oct 2022 - Present*, Redwood City, CA

- MONARCH Endoscopic Surgical Platform System Hardware R&D.
  - Developed robotic hardware and fixtures for system calibration.
  - Created prototype fluid management systems for Monarch Urology procedures.
- MONARCH Software Robotics & Control R&D (Part-time).
  - Developed production software in C++ for a robot calibration workflow that reduced over 50% calibration time.
  - Designed prototypes for intra-operation robot arm admittance visualization with Python and CoppeliaSim.

Senior Mechanical Engineer, Neocis Inc. *Aug 2022 – Oct 2022*, Miami, FL

- System integration lead. Robotic system development for the next generation dental surgical platform.
  - Developed a supervised learning-based robot calibration method with improved accuracy and robustness.
  - Developed an inverse kinematic solver for kinematic control of a redundant robot arm to achieve obstacle avoidance through null space manipulation and multiple-endpoint user input.
- Provided training and support to new-hires, and mentored summer interns on the hardware team.

Mechanical/Robotics Engineer, Neocis Inc. *June 2021 – Aug 2022*, Miami, FL

- Developed the main actuated robot guidance arm for the next generation dental surgical platform.
  - Designed compact joint actuators for 7-dof robotic arm. Built and debugged 3 generations of prototypes.
  - Created a physical human-robot interface end-effector providing haptic and visual feedback to users.
  - Created system specs using numerical simulation in Python and performed kinematic and load analysis.
  - Led internal design reviews and processed design documents and transfers.

Mechanical Engineer Co-op, Harmonic Bionics Inc. *May 2020 – Dec 2020*, Austin, TX

- Designed robotic systems for a 14-DoF rehabilitative upper extremity exoskeleton.
  - Developed linear sizing mechatronic systems, and prototyped test fixtures for sensor characterization.
  - Performed static, fatigue and non-linear dynamic analysis under various loading and impact using FEA.
- Set up company machine shop, compiled safety standard and trained the engineering team with shop equipment.

Special Consultant, TOYOTA Motor North America *June 2017 – Aug 2017,* Plano, TX

- Designed an on-demand transit solution for vulnerable communities in Dallas Fort-Worth Area. Interviewed target population and created numerical simulation for the service model.
- Winner of 2017 Toyota Mobility Foundation + Net Impact Next Generation Mobility Challenge.

RESEARCH

Undergrad Research Assistant, GT LIDAR Lab *Apr 2019 – May 2021*, Atlanta, GA

- Led the development and build of Athena, a 28-DoF biomimetic upper body robot.
  - Led team of 7 in the integration of Athena with other robots, and improving its mechatronic systems.
- Received President's Undergrad Research Award, winner of IEEE AIM 2020 Best Late Breaking Results Poster.

Undergrad Research Assistant, GT EPIC Lab *Dec 2016 – Jan 2018*, Atlanta, GA

- Designed and machined a 2-DoF gait assistive hip exoskeleton with custom series elastic actuators
- Set up trials to validate device's efficacy in reducing metabolic cost of assisted walking.

SKILLS

Mechanical Design: SolidWorks (CSWE), OnShape, AutoCAD, Fusion 360, 3DExperiance, SolidWorks FEA, ANSYS, LS-DYNA, 3DCS VA, nTopology

Software Development: Python, C++, MATLAB/Octave, Bash, Git, Jira

Lab and Testing: LabVIEW, Minitab, Ingenia MotionLabs, EC Engineer

Planning and Administration: SolidWorks PDM, Asana, Arena PLM, Agile EC/PLM

Machining: Mill, Lathe, Water Jet, Laser Cutter, 3D Printing

Electrical: Circuit analysis, signal analysis, oscilloscope, controller design, soldering

Other: rapid prototyping, industrial design, leadership and piano (winner of 2017 GTSO Concerto Competition)