ZHENGYANG KRIS WENG

https://wengmister.github.io/

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EDUCATION

Northwestern University, M.S. in Robotics *Sept 2024 - TBD*, Evanston, IL

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

EMPLOYMENT

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

- MONARCH Endoscopic Surgical Platform System Hardware R&D.
  - Mechanical SME on robotic arm and instrument driver. Developed robotic hardware and test fixtures for system calibration. Developed system requirements for V2 system.
  - Developed prototype fluid management systems for Monarch Urology procedures.
- MONARCH Software Robotics & Control R&D. Part-time resource.
  - Developed production software for a new robotic arm calibration workflow. Reduced over 50% calibration time.
  - Developed prototypes for intra-operation robot arm admittance visualization.

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 and developed extremely compact joint actuators for 7-dof robotic arm and a physical human-robot interface end-effector capable of providing haptic and visual feedback to users.
  - Created system specs using numerical simulation and performed kinematic and load analysis.
  - Led internal design reviews and processed design documents and transfers.
- Developed, built, debugged, and calibrated 3 generations of prototype systems.

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

- Designed robotic systems for Harmony SHR, 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.

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 Athena system integration with other robots in the lab, including Cassie lower limb robot from Agility Robotics and Athena head unit.
- 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 manufactured mechanical systems of a 2-DoF gait assistive hip exoskeleton.
  - Prototyped and machined housing and elastic element (glass fiber leaf spring) for series elastic actuators.
  - Set up trials to validate device's efficacy in reducing metabolic cost of assisted walking.

SKILLS

Software:

Mechanical Design: SolidWorks (CSWE, highest certification), OnShape, AutoCAD, Fusion 360, 3DExperiance

Design Analysis: SolidWorks FEA, ANSYS, LS-DYNA, 3DCS VA, nTopology

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

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

Language: Python, C++, MATLAB/Octave, R, Bash

Hardware:

Machining: milling, lathing, water-jetting, laser-cutting, 3D printing (FDM, SLA), general shop practices

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

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