

# ZHENGYANG KRIS WENG

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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

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## EMPLOYMENT

**Senior Mechanical Engineer**, Johnson & Johnson MedTech

*Oct 2022 - Present*, Santa Clara, CA

- MONARCH Endoscopic Surgical Platform System Hardware R&D.

- Designed robotic hardware and system calibration fixtures for surgical robot and instruments.
- Invented a prototype fluid management system for Monarch Urology procedures.
- MONARCH Software Robotics & Control R&D (Part-time, Oct 2023 – May 2024).
- Developed robot calibration software in C++.
- Designed prototypes for robot arm admittance control visualization using Python and CoppeliaSim.

**Senior Mechanical Engineer**, Neocis Inc.

*Aug 2022 – Oct 2022*, Miami, FL

- Drove system integration for robotic system development in the next-generation dental surgical platform.
- Designed a learning-based robot kinematic calibration method, greatly improved system accuracy and robustness.
- Created an inverse kinematic solver for kinematic control of a redundant robot arm.
- Delivered 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.
- Engineered compact joint actuators for a 7-DoF robotic arm. Built and debugged 3 generations of prototypes.
- Created a physical human-robot interface end-effector providing haptic and visual user feedback.
- Defined system specs via Python-based numerical simulation and performed kinematic and load analysis.
- Led internal design reviews and delivered transfer-ready design packages.

**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.
- Launched company machine shop, authored safety SOPs and trained R&D team on shop equipment.

**Special Consultant**, TOYOTA Motor North America

*June 2017 – Aug 2017*, Plano, TX

- Developed an on-demand transit system for vulnerable communities in DFW Area using numerical simulation.
- Winner of 2017 Toyota Mobility Foundation + Net Impact Next Generation Mobility Challenge.

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## RESEARCH & PROJECTS

**BiDexHand**: Open Source 16-DoF Biomimetic Dexterous Hand

*Jan 2025 – May 2025*, Evanston, IL

- Designed and fabricated a low-cost, anthropomorphic hand (16-DoF, 21 joints, fully 3D-printed) for research.
- Built a complete ROS2 control stack, including auto-calibration, simulation, and teleoperation via VR.
- Integrated the hand with a Franka FER arm and executed piano-playing demos via real-time kinematic control.
- Presented a spotlight talk and poster at the ICRA 2025 *Dexterity Workshop*.

**Undergraduate Research Assistant**, GT LIDAR Lab

*Apr 2019 – May 2021*, Atlanta, GA

- Led a 7-member team that designed and built *Athena*, a 28-DoF biomimetic upper-body robot.
- Received President's Undergrad Research Award, winner of IEEE AIM 2020 *Best Late Breaking Results Poster*.

**Undergraduate Research Assistant**, GT EPIC Lab

*Dec 2016 – Jan 2018*, Atlanta, GA

- Engineered a gait-assistive, 2-DoF hip exoskeleton with series-elastic actuators, machined structural components.
- Designed human-subject trials to validate reductions in walking metabolic energy cost.

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## SKILLS

**Mechanical Design**: SolidWorks ([CSWE](#)), OnShape, AutoCAD, Fusion 360, SolidWorks FEA, ANSYS

**Software Development**: Python, C++, C, C#, MATLAB/Octave, HTML, CSS, ROS2, Git, Bash,

**Machining**: Mill, Lathe, Water Jet, Laser Cutter, 3D Printing (SLA, FDM, SLS, MJF)

**Electrical**: Circuit & Signal Analysis, Oscilloscope, PCB Design (KiCAD), Soldering

**Other**: Rapid Prototyping, Industrial Design, Mentoring and Piano ([winner, 2017 GTSO Concerto Competition](#))