

Richard Kim

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EDUCATION

Duke University, Pratt School of Engineering

B.S.E Mechanical Engineering | Robotics Concentration | Pratt Research Fellows

2021 - 2025

Durham, NC

EXPERIENCE

Gecko Robotics: Mechanical Engineer - Robotic Arm & Crawler Integration

August 2025 - Present

- Designed and deployed a 7-axis Fanuc robotic UT inspection system with custom EOAT, sensors, and automation.
- Sole mechanical engineer on a multidisciplinary R&D team delivering 6 customer demos and a \$1.5M partnership.
- Delivered 3 robot end effectors, leading design reviews, industrial design refinement, and manufacturing.
- Created near-field photogrammetry prototypes capable of capturing high-quality 3D reconstruction of assets.
- Accelerated sensor evaluation and feature roadmapping, reducing photogrammetry capture time by 75%.
- Developed a new payload for a robotic crawler, enabling inspection of a new class of complex metal forgings.
- Improved robotic ultrasound payloads from onsite feedback, executing quick design sprints between deployments.
- Led T&R procedures to uncover root causes of inspection blockers, reducing onsite time from days to hours.

BotBuilt: Mobile Robot Intern

Spring 2025

- Prototyped a 4x8ft mobile robot drivetrain and chassis capable of maneuvering 150+ lb house wall frames.
- Improved robot traction and torque under high payloads and low-friction conditions via swerve gearboxes.
- Developed ROS-based automation for navigation and control, ensuring seamless operation with vision systems.

Axon: Mechanical Engineer Intern

Summer 2024

- Integrated patent-pending design changes on the TASER 10 to increase magazine life expectancy by 133%.
- Improved TASER 10 water and dust ingress protection by designing high-volume injection molded parts in Creo.
- Refined haptic feedback prototypes for Axon bodycams and handles, optimizing designs for CNC machining.
- Used FEA and full-stack tolerance analysis to develop spring stress test fixtures to reduce live cartridge testing.

Theia Imaging: Mechanical Engineer Intern

Summer 2023

- Designed, prototyped, and integrated a polarized motor controller into the first OCT imaging microscope.
- Optimized initial 3D-printed designs, utilizing FEA and GD&T to manufacture small-batch machined prototypes.
- Created custom PCBs with motor controller drivers to reduce wiring footprint on controller subassembly.

Duke DesignHub: Design Engineer

Jan 2022 - May 2025

- Managed multiple design projects and assisted clients with rapid ideation, design, and prototyping.
- Ownership over various client projects ranging from automated syringe stations to liquid nitrogen tank lifters.
- Trained incoming staff on power tools, lathes, CNC, 3D printers, laser cutters, and water jets.

PROJECTS/TEAMS

Amazon Robotics: Smart Conveyor System

Aug 2024 - May 2025

- Collaborated with Amazon Robotics engineers to design a sub-\$2k automated package delivery system.
- Utilized localized omnidirectional wheels with a vision system to optimize energy utilization and movement.

Oca Labs: Automatic IV Needle Insertion via UR5 Robot Arm

Aug 2022 - May 2025

- Developed a robotic IV catheter insertion system under Dr. Oca as a 3-year Pratt Research Fellow.
- Iterated end effector prototypes, created arm tissue phantoms, and validated PID-controlled actuation.
- Programmed a UR5 arm to insert IV needles at a specified angle using inverse kinematics, ROS, and ultrasound.

Duke Motorsports FSAE

Aug 2021 - Dec 2023

- Contributed to 3 generations of FSAE car chassis focusing on design, optimization, and manufacturing.
- Developed hands-on expertise in FEA, welding, tube-notching, and structural reinforcement.

Duke Engineers for International Development (DEID): West Virginia Project Manager

Aug 2021 - May 2022

- Led a 12 member team in designing and drafting plans for a EIA-chartered vehicular bridge with JZ Engineering.
- Built a 15-ft, 20-ton load-rated bridge in 2 weeks, projected to reduce transportation costs by \$12,000 annually.

SKILLS/INTERESTS

Technical Skills: SolidWorks Associate Certified, Creo, Fusion 360, Onshape, ANSYS, CAM, GCODE, CNC milling, Laser Cutting, Waterjet Cutting, FDM/SLA 3D-Printing, ROS, Python, C++, Machine Shop Basics, Circuitry Basics.

Interests: Photography, Swimming, Snowboarding, National Parks, Skateboarding, Keyboards, 3D-Printers, FRC.