

Zhijing(Rey) Hu

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🌐 ZhijingHu-Rey

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🏠 Baltimore, MD

EDUCATION

Johns Hopkins University

Master of Science in Engineering in Robotics

Baltimore, MD, US

Aug 2021 - May 2023

- Transferred from Mechanical Engineering | Major GPA: 3.2/4.0

Rutgers University - New Brunswick

Bachelor of Science in Mechanical Engineering with Honors

New Brunswick, NJ, US

Aug 2017 - May 2021

- Honor Student in Dean's List | Major GPA: 3.6/4.0 | Achieved Best Overall ME Senior Design of Class 2021

WORK EXPERIENCE

Hangzhou KEQIANG Information Technology Co., Ltd

Mechanical Engineer / Software Engineer Intern

Zhejiang, China

June 2021 - Aug 2021

- Participated in Injection Molding Machine using High-Net Control System program
- Learned and developed basic OPC server and clients by different two different coding languages - Java and C Sharp, and applied them to IFMS (Intelligent digital factory management system)
- Imported production plans into manufacture system through ERP, monitored the processing parameters, checked the defective goods feedback and followed PDCA to complete the maintenance
- Set up Machine-To-Machine communication and improved back-ends of alarm system through computer server, mobile APP and emails

VALEO Automotive System Co.Ltd

Mechanical Engineer Intern

Shanghai, China

June 2020 - Nov 2020

- Participated in two main training programs: Wiper and Washer System of motor vehicles and Clean Project Management(CPM)
- Mastered two different front linkages of Parallel system and Overlap system as well as key characteristics of the linkage of wiping arm and blade, and investigated the performance of materials applications and assembly structures
- Improved the project decision making abilities, involving Critical (Supplier) Parts selection, NPP SoCo decision making process, Purchase Order – Workflow simplification and PM empowerment, etc
- Calculated and simulated the attack angle of wiper system, learned the wipe patterns and system components in industrial production line, and proposed the safety plans of the system

RELEVANT PROJECTS

Haptic Vision Cap for Visually Impaired Users

Nov 2021 - Dec 2021

- Designed and assembled the entire haptic cap system including cap main body, necessary laser cutting parts, IR/Ultrasonic sensors, mini vibrators, circuit wires and Arduino boards on SolidWorks
- Developed specific programming in Arduino to realize the detection about the presence of approaching objects to the users, transferring the sensing signals to specific frequencies of vibration feedback
- Planned and conducted the test procedures in non-blinding trails on the participants, simulating the encountered obstacles for users
- Collected user feedback for adjusting the frequencies of vibration on various situations, and evaluated system performance via avoidance reminding success rates with corresponding reaction times or distances

UR5 Robot Move/Pick-and-Place Task

Dec 2021

- Devised scripts and help functions for UR5 robot using R-VIZ to achieve the desired "move-and-place" performance on MATLAB
- Developed 3 control algorithms to drive the robot to a given position and orientation (pose) in Cartesian space using Resolved Rate Control
- Completed robot movement "pick-and-place" except the gripper movement, and created new motions using inverse/differential kinematics

Low Cost COVID-19 Ventilator (Undergraduate Senior Design)

Aug 2020 - May 2021

- Conducted meetings with advisors and teams, devising project strategies and designing features: low-cost, portable and automatic
- Responsible for designing sub-assemblies of ventilators including air delivery system and bellows-based compressor mechanism, and improving the corresponding safety features (valves, alarms, controllers and sensors) on SolidWorks
- Calculated the compressor volume changing rate for different air delivery modes in MATLAB and developed step-motor driving programming codes in Arduino, then simulated the corresponding air flows in tube models via ANSYS

Tripod Robotic Arm on Inclined Guide Rails

May 2019 - Aug 2019

- Investigated the working principles of 3D Printing and applications of conventional printing materials, further designed and improved the grabbing robot hand on SolidWorks
- Calculated and testified the spatial linkages and trigonometric functions of the robotic arms, collected over 2,000 sets of 3D coordinates to adjust and optimize the motion path of robot, improving the spatial motion accuracy
- Installed and tested the circuit board and MKS Base for Delta 3D printer and CNC control, and later programmed, tested, and debugged function codes in Arduino to realize locate-and-grab motions

TECHNICAL SKILLS

Engineering: SolidWorks, ANSYS, ROS, Simulink, Auto CAD, LabView, Altair

Programming: MATLAB, C, Arduino, Git, Java, Python, HTML5