VIJAYA KRISHNA VEERISETTY

Rockville, MD | vvkvijaykrishna@gmail.com | +1-720-761-3783

https://www.linkedin.com/in/vijaya-krishna-veerisetty-723063182/ | github.com/vvkvijaykrishna

Education

University of Colorado, Boulder, Master of Science in Mechanical Engineering — Aug 2021 – May 2023
- **Coursework:** Motion Planning, Linear Control Systems, Feedback Control, Mechatronics, Control Systems Lab, Advanced Robotics

National Institute of Technology, Calicut, Bachelor of Science in Mechanical Engineering — Aug 2017 – May 2021
- **Coursework:** Introduction to Robotics, Control Systems, Kinematics and Dynamics of Machinery, Machine Design

Experience

Automation Engineer, Axle Informatics – Rockville, MD — Jul 2023 – Present
- Performed pharmaceutical laboratory automation for NIH/NCATS.
- Designed a modular capping-decapping system on OnShape, adaptable for various vial sizes, optimizing efficiency by reducing actuators. Components were fabricated using CNC machining, waterjet machining, and 3D printing.
- Developed and implemented software using Object Oriented Programming for a Serial Evaporator System, integrating a camera, barcode scanner, industrial robotic arm, precision weighing balance, and V10 evaporator. This integrated system significantly enhanced safety and reliability within the laboratory environment.
- Integrated the system to web interface on Microsoft Azure using Python. Reduced single-rack evaporation cycle time by 2 hours.
- Developed and programmed microscopic XY and XYZ stages with integrated high-resolution camera and electrode end-effectors for testing, analyzing, and visualizing biological samples.
- Created a user interface, using Python Streamlit, to home and calibrate the system. Enabled precise control of electrode movement and camera through the interface, reducing single-plate analysis cycle time by 75%.

Laboratory Automation Intern, Axle Informatics – Rockville, MD — Jun 2022 – Aug 2022
- Operated and maintained automated platforms with robot manipulators to perform high-throughput chemical compound screening.
- Programmed 6-DOF industrial robotic arm to perform pick-and-place of well plates for mass spectrometry.

Teaching Assistant (Solidworks), University of Colorado, Boulder – Boulder, CO — Aug 2021 – Dec 2021
- Guided 25 undergraduate students in a Computer-Aided Design lab, covering part modeling, drawing, assembly modeling, and Geometric Dimensioning and Tolerancing (GD&T). Hosted office hours and graded assignments.

Skills and Technologies

Software and Languages: C++, Robotic Operating System, Python, GitHub, MATLAB, Simulink, Linux

Computer Aided Design, Simulation and Analysis: Solidworks, OnShape, CNC machining, Ansys, FluidSim

Microcontrollers and Hardware: Arduino, Raspberry Pi, Jetson, Pneumatics, Lathe, 3D Printing, Laser cutting, Milling, CNC Machining, Arc and Gas Welding

Certifications: Coursera: Machine learning (offered by Stanford University), PLC Developer Course (LinkedIn Learning)

Projects

Autonomous Vehicle Control — Jan 2023 – May 2023
- Implemented motion planning algorithm using RRT* and real-time mapping with LiDAR data using Particle Filter.
- Integrated Particle Filter, IMU sensor and PID controller on the vehicle using ROS.

Kino-dynamic Motion Planning of Multiple 3-DOF Robot Manipulators using RRT — Sep 2021 - Dec 2021
- Designed and implemented a kinodynamic motion planning algorithm for a 3-DOF robotic manipulator using Rapidly-exploring Random Tree (RRT), incorporating joint angles and velocities as a 6-dimensional state space.
- GoalBiased RRT algorithm was used to develop multi-agent motion planning for a system of three robot manipulators (each having 3-DOF), achieving collision-free and synchronized motion.
- Implemented RRT to enable precise object transfer between two manipulators (each having 3-DOF), ensuring seamless coordination and maintaining kinematic constraints.
- Developed modular motion planning libraries using object-oriented C++ for efficient collision detection, ensuring scalability and reusability. Leveraged MATLAB for comprehensive data visualization and performance optimization.

Autonomous Bartender Robot — Jan 2022 – May 2022
- Implemented identity card recognition using Machine Learning for mixing vend serving drinks using a robotic arm.
- Integrated tactile sensor for effective gripping of bottles and glasses, ultrasound sensors, and developed a complete algorithm for 5-DOF series manipulator using ROS, Raspberry Pi and Nvidia Jetson for complete automation of the robot.

Design, Fabrication and Control of Rugby Robots for ABU Robocon 2020 — Oct 2019 – Apr 2020
- Engineered a pair of robots (with ball picking, throwing, receiving, and kicking systems) for rugby competition.
- Programmed systems for integrating encoders, IR sensors, LDRs, and gyroscopes with pneumatic mechanisms.
- Developed and implemented a PID control system for coordinated football throwing and receiving between a pair of robots.

Honors and Extracurricular Activities

- Event manager for Robotics events (Technical festival), Committee Member for Media club (cultural festival), Team leader for ABU Robocon 2020 (representing NIT Calicut), Executive member of the Robotics Interest Group (technical club, NIT Calicut).
- Organized robotics workshops and stalls by lecturing 500+ students at college level in association with the Robotics Interest Group, NIT Calicut.