https://github.com/kevicha5928

Kevin Chang

Kevicha5928@gmail.com

SKILLS

Languages: Python, JavaScript, Arduino, Matlab, SQL

Frameworks: React, Pandas, NumPy, matplotlib, Dash, OpenCV, Mongoose, Express, NodeJS, Redux, Firebase

Software: SolidWorks, Microsoft Office, Visual Studio Code, Git, Rslogix 5000, XLReporter, MongoDB

Hardware: Raspberry Pi, Arduino, 3D Printing, Allen-Bradley PLC, Cognex

EXPERIENCE

Meso Scale Discovery May 2017 – Present
Automation Engineer II

- Created an intellectual property proposal for a new method of machine vision assisted product assembly that would increase accuracy and reliability while decreasing system complexity
- Developed Python application to read data from a PLC to improve logging capabilities and data analytics
- Created companion web application for data visualization from the aforementioned data logging program.
    - implemented with the Dash / Flask framework in Python.
- Created a Python application that collected data from an ultrasonic sensor to track sensor performance and provide metrics to improve calibration.
- Provided critical software support to active production machines to ensure downtime was kept to a minimum.
- Led the effort to refactor existing PLC software routines which resulted in more readability and traceability
- Optimized the PLC subroutines in a critical production machine resulting in a 20% improvement in production speed.
- Developed an adaptive self-correcting product assembly method to improve product quality. As a result, product yields increased to 99.8% from a previous ~96% yield.
- Established a sequential code structure for robot motion control resulting in more readable code and increasing reliability
- Developed PLC code to generate robot position coordinates to reduce the number of robot positions that need to be manually taught. This resulted in less human induced error when robot positions needed to be retaught.
- Improved the accuracy and reliability of machine vision inspection systems by optimizing visual targets

UMBC Autonomous Systems Research Lab September 2015 – May 2017
Graduate Research Assistant

- Developed application to use depth sensing and skeleton tracking capabilities of Microsoft Kinect V2 to tele-operate a robot arm

PROJECTS

Weight Lifting Exercise Tracker May 2020 – Present

- Spearheaded the development of a customer facing web application with a small team of software engineers
    - Initiated discussions on design and functionality based on customer requirements
    - Led the development of the front-end UI based in React JS and Material UI
- Utilized React hooks, Redux, Redux-Thunk, and Axios for state management
- Database and Authentication handled through firebase

Sorting Algorithm Visualizer April 2020

- Developed web app to visualize the steps in several sorting algorithms (Bubble, Insertion, Merge and Quick)
- Implemented with React with hooks and react spring for physics-based animations

OpenCV Color Tracking Robot March 2016 – May 2016

- Designed and manufactured a pan and tilt camera gimbal capable of tracking and following a user specified color.
- Applied PID control algorithm and OpenCV Color tracking

EDUCATION

University of Maryland, Baltimore County (UMBC)
M.S. in Mechanical Engineering, Control Systems 2017
B.S. in Mechanical Engineering 2015