Rigved Koushik Doddi

336-995-4908 | rigveddoddi2002@gmail.com | linkedin.com/in/rkdoddi | github.com/RigvedKD

Education

Bachelor of Computer Engineering, North Carolina State University May 2021 – May 2024

- Embedded Systems Architectures, Embedded System Design, Microarchitecture, Neural Networks, Microelectronics, Design Principles for Complex Digital Systems, Compiler Optimization and Scheduling, Application Programming in Java

Skills

Languages: Java, Python, C, C++, Verilog, MATLAB, Simulink, JavaScript, HTML, CSS, SQL, Vue.js, React Native
Technologies: Docker, Git, SVN, Linux, Windows, Vivado, Vitis, OpenCV, NumPy, Pandas, Keras, TensorFlow, sklearn, Matplotlib, SVN, Polariton, CAN, Vector

Work Experience

Controls Intern | Hyster-Yale June 2023 – May 2024

- Used MATLAB scripts and Simulink for SIL/MIL testing to improve efficiency and reduce potential issues.
- Designed and created test harnesses for truck controllers, ensuring hardware met specifications. Gained experience with CAN and Vector Software.
- Learned automated unit tests using Jenkins, enhancing software reliability and deployment efficiency.

Full Stack Developer Intern | PlayMetrics May 2022 – Aug 2022

- Developed a user interface with Vue.js, JavaScript, HTML, and SQL for monitoring company success and user information.
- Created visually informative graphs and charts to streamline the client onboarding process.
- Retrieved and integrated data from various APIs, organizing it for over 500 clubs to improve accuracy and usability.

Research Assistant | North Carolina A&T State University June 2021 – July 2021

- Contributed to a $300,000 NCDOT-funded research project on autonomous vehicles, involving a car and a quadcopter with various sensors.
- Developed a small-scale prototype car and programmed sensor functionality.
- Designed and built a 3D exoskeleton and frame for the car using SolidWorks and 3D printers.

Projects

Real-Time Object Detection and Tracking (Sponsored by Northrop Grumman):

- Designed and created a smart camera to identify, track, and follow someone wearing a facemask using AMD Xilinx's KV260 development board.
- Developed object detection using a pre-compiled facemask detection model from Xilinx's Model Zoo.
- Utilized OpenCV's legacy MOSSE algorithm for object tracking, processed through a proportional-only controller.
- Created a module to convert coordinates into angles for precise movement.
- Implemented a proportional (P) controller for correct camera positioning.
- Designed and assembled a circuit to interface with sensors and control system.
- Researched and sourced components, including a servo controller.
- Documented the development process, created reports, and presented the project outcomes.

Autonomous Car:

- Created a model car that follows a black line using a PID controller to adjust direction and speed based on error.
- Designed the car to be manually controlled using an IoT module (ESP32) and any device with Wi-Fi.
- The car was built using C, a MSP430, a FET board, an ESP32, a IR LED sensor, and a display board designed from PCB schematics.

Apple Stock Prediction:

- Developed a neural network model to automate stock technical analysis, reducing the time and expertise required.
- Utilized historical Apple stock data to predict future prices, focusing on the closing price.
- Implemented a baseline recurrent neural network with a simple RNN layer, achieving a root mean square error of 4.085, later enhanced with long short-term memory for accuracy.
- Achieved a root mean square error of 1.962, significantly improving the baseline.

Simple CPU:

- Using Verilog, created a 16-bit CPU capable of performing arithmetic calculations like add, subtract, multiply, divide, modulo, and exponents.
- Programmed an ALU with necessary opcodes.
- Designed and programmed a control unit, data path, and register file.