Shovan Shakya

shovanshakya@usf.edu linkedin.com/in/shovan-shakya-45526317b momoisgoodforhealth.github.io/

Education

University of South Florida **Tampa, Florida**

Bachelors of Science in Electrical and Electronics Engineering, 3.55 GPA *Spring 2025*

Skills

Languages: C, C#, C++, Python, Kotlin, Verilog
Software: OpenCV, Pytorch, ROS, Keysight ADS, KiCAD, Labview, Git, Vivado, LTSpice, MATLAB
Hardware: Oscilloscope, DC Power Supply, VNA/VSA, Spectrum Analyzer, FPGA, Micrcontroller
Certificates: Keysight Technologies RF and Microwave Level 1

Experience

Universal Creative **Orlando, Florida**

Sensor Fusion Intern *May 2024 - August 2024*

- Designed and implemented double sided 4 layer PCB module for STM32 with IMU, Ethernet SPI, CAN Transceiver, capable of handling upto 30V input voltage.
- Hot plate soldering LGA packages. Soldering QFN and SMT packages.
- Writing and testing firmware in C for the above STM32 PCB interfacing with IMU using I2C.
- Using CANBUS to daisy chain multiple modules to share IMU information.
- Transferring all the IMU information to computer using Ethernet SPI.
- Developed synchronized pose and camera data recording application for a mutli-stereo camera ROS based platform.
- Created 1D Bidirectional CNN model to train and test hand gesture recognition using pose information.
- Used image processing methods for verification and detection of flickering, cut-outs for display screens.
- Researching and developing autonomous dynanmic navigation for crowded environments using Nova Carter robot.

Monterey Bay Aquarium Research Institute **Moss Landing, California**

Computer Vision Intern *June 2023 - August 2023*

- Developed OpenCV based realtime disparity and distance estimation tool for fisheye stereo cameras with accuracy range of 5 meters (+- 300 mm) for desktop and VR.
- Integrated FathomNet YOLOv5 deep sea organism tracking model with distance estimation.
- Used Sockets to send realtime frames, and distance information between Python OpenCV application and Unity VR.
- Developed pilot-friendly User Interface for VR Unity application.
- Enabled multiprocessing and CUDA for optimal realtime performance.

Universal Creative **Orlando, Florida**

Software Engineering Intern *September 2022 - December 2022*

- Created C# and Python Flask applications for automated parsing of 200+ test files into XML for PLC based simulation
- Verification and Debugging of Ladder Logic for Siemens PLC using TIA Portal.
- Initiated exploration of Brain Computer Interface and Spatial Audio applications for park experiences.(Emotiv, Dolby)
- Deployed project involving a moving prop using stepper motors and microcontroller with other interns.

Center for Assistive, Rehabilitation, and Robotics Technologies **Tampa, Florida**

Research Assistant *May 2022 - Present*

- Researching and developing autonomous navigation for wheelchair with robot arm.
- Exploring and Implementing RNN, LSTM methods using Pytorch for full body gait prediction from leg markers.
- Developed driving simulation environment using Unity, controlling Motek motion base. Established low latency communication between between client and motion base using NRF24L01 wireless transceiver.

Projects

PCB Design for STM32 with Bluetooth U.FL for fNIRS headset **January 2024**

- Designed a 4 layer PCB using KiCAD for STM32 with Bluetooth.
- Created schematic symbol and footprint for bluetooth component.
- Implemented impedance control for Bluetooth U.Fl connector.

RISC-V CPU on Basys 3 FPGA **2023**

- Designed and implemented a 16-bit CPU for RISC-V based instruction set architecture on Basys 3 (Artix-7) FPGA.
- Testbenching, synthesis, and implementation done through Vivado and Verilog.