Badar Jahangir Kayani

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Education

Case Western Reserve University – Cleveland, OH — May 2021

Integrated BS/MS in Electrical Engineering — **GPA: 3.96/4.00**

Coursework: Robot Kinematics and Path Planning, Design of IoT Edge Devices, Mobile Health Technologies, Computational Intelligence, Embedded Systems, Digital Signal Processing, Electronic Circuits

Skills

Programming Languages: C/C++, Python, MATLAB, Java, HTML, CSS, Flutter
Software Packages: Altium, Eagle, STM32Cube, Simplicity Studio, Git, SolidWorks, CorelDraw
Prototyping: Product Design, Board Bring-Up, SMD Soldering, Hardware Assembly, Failure Analysis

Work Experience

Noxgear LLC – Columbus, OH — May 2021- Present

Senior Electrical Engineer

- Developed a wearable flashlight and coordinated its electronics production
- Optimized the light for low cost while achieving performance of 2x priced competing products
- Redesigned a wireless speaker for Bluetooth 5.2 and improved its radio performance
- Programmed and tuned the Qualcomm SoC in the speaker to achieve a smooth user experience
- Developed the firmware for a lighting product and optimized it through testing and feedback

Sears think[box], Case Western Reserve University – Cleveland, OH — May 2020 – August 2020

Lead Design Engineer (Special Projects)

- Developed a novel device (SUDS) that decontaminates N-95 masks to combat Covid-19 PPE shortage
- Co-authored a research paper published in the American Journal of Infection Control

Sears think[box], Case Western Reserve University – Cleveland, OH — Jan 2017 – May 2020

Lead Student Technician (Prototyping)

- Assisted researchers and developers with the prototyping phase of their design process
- Operated and maintained industrial prototyping machines including 3D printers and CNC routers

Keithley Instruments – Solon, OH — Jan 2018 – June 2018

Test Engineering Co-op

- Developed automated tests in C++ to validate hardware specifications on the 6500 series products
- Incorporated automated tests written in Python at multiple points in the Jenkins pipeline

Academic Projects

Earox – Wearable Pulse Oximeter (MS Thesis)

- Developed a novel implementation of a pulse oximeter using the earlobe for sensing
- Designed a wireless wearable prototype that clipped around the ear and connected via BLE
- Researched and implemented a customized algorithm for HR and SPO2 measurement

Lampi – Smart Connected Lamp

- Developed a complete software solution for an ARM SoC based connected IoT desk lamp
- Set up a server to host the web interface, the database and the state synchronization
- Programmed a mobile application in Objective C to control the lamp over a BLE connection

Hobby Projects

Autonomous Robots

- Designed and built autonomous robots for indoor and outdoor operation
- Implemented EKF based localization algorithms that used LIDAR, IMU and Encoder inputs
- Developed path planning and navigation schemes for the robots in ROS

More hobby projects can be found on my website