Gaurav Bhalla
Email: gauravbhalla990@gmail.com | Phone: (972) 363-6331 | LinkedIn: www.linkedin.com/in/gauravbhalla9
Personal Website: https://gauravbhalla990.github.io

EDUCATION

Texas A&M University, College Station, Texas

Bachelor of Science in Computer Engineering - Electrical Engineering Track — *May 2022*
Minor in Mathematics — *Cumulative GPA: 3.5*

Related Coursework

Electricity & Magnetism, Circuit Theory, Analog Design, Radio Frequency (RF) Design, Digital Design, Advanced Computer Architecture, Operating Systems, Microprocessor System Design, CMOS VLSI design, Data Structures & Algorithms, Communications & Cryptography, Programming in ARMv8, C, C++, Java, Python, and MATLAB.

Skills Summary

Extensive experience with electronic test bench equipment; doing analog and digital design on a breadboard; electron microscopes parts and techniques; analyzing Printed Circuit Board (PCB) layout files through Autodesk EAGLE; doing PCB connection validations with a multimeter; soldering, and welding; using embedded systems such as ST Microcontroller boards; using LTSpice, PSpice, NI Multisim, Cadence, Verilog HDL, Google Sketchup, Tinker CAD, Linux, C, C++, Java, Python, SQL, HTML, JavaScript, CSS, Git, and GitHub for projects; and basic RF engineering practices.

Practiced collaborating, documenting and presenting for projects with Microsoft Office, and Google Drive tools. Maintained good driving record since high school. Also, participated in leadership, logistics, mentoring and conflict resolution experiences as an Engineering Peer Mentor and then Resident Advisor. Lived and studied globally, and learned conversational French, intermediate Hindi, and basic Spanish.

TECHNICAL EXPERIENCES

Aggies Invent NSA 3rd Place Winner, Team Sensory Overload — *Sep. 2021*
https://engineering.tamu.edu/news/2021/09/first-in-person-aggies-invent-in-two-years-hosted-by-national-security-agency.html

- Developed a solution for pedestrian and cyclist accidents at a 48-hour hackathon in a 6-member team.
- Designed a model that detects objects through sensors and informs the user through vibration motors on the user.
- The model applies artificial intelligence, real-time data from users and Google Maps to predict dangerous areas.
- Built working prototype with only materials from team: Arduino, wires, 2 Piezo buzzers, 2 breadboards, 1 infrared sensor, 1 ultrasonic sensor and a battery pack.

Application Specific Integrated Circuit (ASIC) Validation Researcher — *Aug. 2020 – Mar. 2021*

- Graduate student previously designed ASIC designed to detect alpha particles.
- Validated a custom Printed Circuit Board designed to interface the ASIC to a computer via an Arduino Mega.
- Analyzed the PCB layout file with EAGLE and addressed functional issues.
- Developed an Arduino program to provide stimulus to and receive data from the ASIC.
- Solved logic-level voltage compatibility issue with 74LVC245 Logic Level Voltage Shifter chip.

Software Engineering Intern, Parkland Center for Clinical Innovation — *Jun. 2020 – Aug. 2020*

- Developed a full-stack MVP web application with Flask, HTML, CSS, and JavaScript.
- Followed the OAuth2.0 protocol to implement the Azure AD REST API which authenticates company users.
- Deployed on an Azure Linux VM with the Gunicorn WSGI and Nginx reverse proxy servers.

W5AC Amateur Radio Club — *Oct. 2019 – Present*

- Passed FCC Technician licensure exam so am licensed to communicate over certain frequency bands.
- Currently working on testing for the amateur radio general and extra licenses.
- Building gradually more advanced iterations of a crystal radio.
- Introduced to Radio Frequency (RF) concepts at a Keysight Technologies seminar and from a club textbook.

LEADERSHIP

Resident Advisor — *Aug. 2021 – Present*

- Creates inclusive community on 1st floor of a dorm through planned events and individual mentoring.
- Monitor halls, performs room inspections, and ensure residents' compliance with dorm policies.

Engineering Peer Mentor — *Aug. 2019 – March 2020*

- Collaborated with Resident Advisors to mentor 1st year engineering students in a dorm.

Corps of Cadets — *Aug. 2018 – May 2019*

- Learned time management, perseverance, self-discipline, rational thinking and leadership skills.

ADDITIONAL EXPERIENCES

Physical Design Researcher *Apr. 2021 – Jan. 2022*

- Worked under professor to attempt developing an optimal routing algorithm for Field Programmable Gate Arrays.
- Learned concepts from Xilinx's RapidWright, and University of Toronto's VPR tools.

Embedded Design Engineer, Texas A&M RoboMaster Robotics *Feb. 2020 – Oct. 2021*

- Programming robot functions through the Keil uVision5 software and STM32CubeMX.
- Used FreeRTOS with the STM32 RoboMaster Development Board Type A on STM32CubeMX.

Aggies Invent: Invent for the Planet 2020 Participant *Feb. 2020*

- Designed the front-end for an app called EZ-Vac, which plans an optimal evacuation route for an individual with the Google Maps API during a flood or earthquake based on user-submitted data, and data from the FEMA database. EZ-Vac would also be designed to work without internet by texting screenshots of the maps with the route to users through the Twilio API.

IEEE TAMUmake 2019 Participant *Jan. 2019*

- Created a Checkmate algorithm in Python 3.6 for an interactive chess board as part of a 4-member team.
- Programmed a four-digit seven display to be a timer with the Arduino.
- Implemented use of the OpenCV API service to recognize chess pieces and their positions on the chess board from pictures taken by the Arduino camera shield.

Texas A&M IEEE Chapter *Jan. 2018 – Present*

- Member since 2018, general fellowship and networking.
- Introduced to various Electrical Engineering concepts through educational workshops. Attended presentations of representatives from organizations in the Electronics, Power and Telecommunications industries