Sina Tahbaz

Toronto, ON

sina.tahbaz@gmail.com linkedin.com/sina-tahbaz sina-tahbaz.github.io

Skills

Languages
- C/C++
- Python
- Verilog
- VHDL

Software
- Altium
- HSPICE
- Fusion360
- COMSOL

Embedded
- STM32
- FPGA
- ESP32
- nRF5x

General
- Soldering(through hole down to 0603 SMD)
- Test Equipment(oscilloscope, function gen, multimeter)
- Fab Equipment(Sputtering, E-beam, Polarized Raman)
- Prototyping(Design, PCB Etch, Assembly)

Projects

High Precision Closed Loop Stepper Motor control system - Client Project — Jan 2023

- Developed a closed-loop control system using a dedicated stepper driver and a motion controller IC
- Utilized a rotary optical encoder and a 0.9 degree 400 step NEMA17 motor to achieve high precision
- Implemented a compensation algorithm to account for any step losses and ensure accurate motor positioning

PID Ball Balancing System - Industrial Control Systems Course Project — Apr 2020

- Designed a ball balancing system using two Arduino boards, a time of flight distance sensor, and a servo motor
- Implemented a PID control algorithm to maintain the ball at the center of a track.
- Created a user-friendly interface to adjust PID values

Laser Targeting System with Face Detection and Raspberry Pi - University Contest Project — May 2018

- Built a laser targeting system using a Raspberry Pi, camera module, and two servo motors
- Integrated OpenCV libraries for face detection to aim the laser at the detected target with high accuracy

Smart RFID Alarm Clock - Personal Project — Feb 2020

- Developed a smart alarm clock with an OLED display and RFID scanner to improve the morning routine
- Configured the alarm to only turn off when a specific RFID tag is scanned.
- The tag is placed in a remote location to ensure that the user gets up and moving in the morning

Education

MASc. in Electrical and Computer Engineering, GPA A | York University, Toronto, ON — 2021-2023

- Thesis: Investigating thermal properties of 2D transition metal dichalcogenides (TMD)s using frequency domain thermoreflectance (FDTR)

BSc. in Electrical Engineering, GPA 3.54/4 | Shahid Beheshti University, Tehran, Iran — 2016-2020

- Thesis Project: Design and simulation of a MEMS logic device for binary neural networks in COMSOL

Experience

Research Assistant | York University, Toronto, ON — 2021-present

- Fabricated samples of 2D materials using mechanical exfoliation of the crystal flakes
- Deposited a layer of Aluminum on top of the samples and measured them using FDTR

Teaching Assistant | York University, Toronto, ON — 2021-present

- Provided guidance and support to students in programming courses as a lab assistant
- Fostered a collaborative learning environment that encouraged student success

Research Intern | Laser and Plasma Institute, Tehran, Iran — Summer 2019

- Designed and simulated a high efficiency solar dish Stirling engine using COMSOL multiphysics

Teaching Assistant | Shahid Beheshti University, Tehran, Iran — 2018-2019

- Mentored students in analog circuit design, specializing in audio amplifiers and CMOS circuits
- Provided individualized support to help students succeed in course exercises