Rudra Goel

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Objective

Dedicated engineering student with 3 industry-level projects and research experience spanning various disciplines from computer architecture to embedded systems design. Currently seeking an opportunity in robotics and computer hardware where I can leverage my experience & contribute to innovative solutions learning more about application design and VLSI.

Education

Georgia Institute of Technology | Atlanta, GA *August 2023 – Present*
Bachelor of Science in Computer Engineering, GPA 3.76 Expected Graduation, May 2027

Skills

Programming: Java (advanced), Python, JavaScript, SQL, ReactJS
Hardware: Arduino Uno/Nano/Mega, PWM, Adafruit Trinket M0 (SAMD21), PIC32, oscilloscopes, soldering iron
Software: SolidWorks (CSWP & CSWPA's), Git, Windows Active Directory, mySQL, Altium Designer, EasyEDA
Communications & Language: Public Speaking, Project Proposals, Project Reports, SCRUM methodology

Experience

Najafi Lab | Atlanta, GA *August – December 2023*
Undergraduate Research Assistant
Computational Biological Sciences lab that focusses on mapping the cortical and cerebellar mechanisms to ultimately promote the treatment of psychiatric and neurological disorders.

- Increased efficiency of experiment protocols by designing and implementing 3D parts on over 5 lab instruments.
- Implemented custom light shield on 2-Photon Microscope for neural imaging, applying analysis in electromagnetic waves foundations in physics.

YPrime | DeVault, PA *May – August 2022*
Data Aggregations, Reporting, and Testing (DART) Intern
Recent startup that designs cloud-based Clinical Trial Management Systems (CTMS) for pharmaceuticals (Pfizer, Moderna, etc.)

- Developed Python scripts to pipeline over 3TB of user data from SQL Server onto SharePoint pages for company-wide use. Utilized Python's Matplotlib, Seaborn, & Pandas.

Highlighted Projects

A Real, Simple Tuner (In Progress) | *Discovery Project* *Spring 2024*
Self-guided project to create a small, simple, and portable instrument tuner using the SAMD21 MCU, microphone, and 1 LED.

- Currently researching the dynamics of sound and its detecting with microphone technologies.
    - Applying Fourier Transform to develop a DSP algorithm and determine instrument pitch up to 5% error.
- Leveraged embedded systems experience to design a board less than 4 square inches.

Ravana Custom Drone Technologies | *HS Senior Capstone* *Fall 2022 – Spring 2023*
Create a quadcopter from the ground-up including mechanical design, control board, and codebase. An individual undertaking.

- Designed and developed 3 iterations of control and power distribution board utilizing 2 different MCUs. Gained extensive knowledge over embedded systems design and PCB manufacture.
- Devised Flow Simulation analysis in SolidWorks to optimize drone body and weight down to 200g; underwent 3 design iterations & significantly researched aerodynamics behind propellors.

Leadership & Activities

GT RoboJackets | Electrical Sub-Team Architect *January 2016 – May 2017*

- Designed 500g robot control board integrating Teensy 4.1 (ARM Cortex-M7), IR sensors, High Voltage MOSFETS, and H-Bridge Motor Driver

GT Silicon Jackets | Digital Design Team

- Applying basics in HDL in SystemVerilog to create simple modules for a RISC-V CPU