Rudra Goel

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Education

Georgia Institute of Technology | Atlanta, GA *August 2023 – Present*
Bachelor of Science in Computer Engineering, GPA 3.84 Expected Graduation: May 2026
Threads in VLSI and Computer Architectures & Signal Information Processing

Skills

Programming: Java (advanced), Python, JavaScript, SQL, ReactJS, C, Assembly
Hardware: Arduino MCUs, ESP32, SAMD21 & PIC32 by Microchip, Communication Protocols (I2C, UART, SPI), VHDL, SystemVerilog, FPGA, PCB layout
Software: CAD Modeling (SolidWorks & Fusion), Git, mySQL, Altium, Quartus Prime, Synopsys, MATLAB

Experience

Mobile Advanced Research (MARGA) Lab *August 2024 – Present*
ECE Opportunity Research Scholar (ORS)
- Manipulated propagation of acoustic waves with metasurfaces for dedicated personal acoustic spaces.
- Conducted experiments with transceiver arrays for targeted beamforming applications in near-field acoustic spaces.
    - *Amplified main signal vector 2x towards desired location*

GT ECE Instructional Labs *August 2024 – Present*
Undergraduate Teaching Assistant
- Assisted students across five ECE courses answering questions on lab procedures & verifying accuracy.
- Prepared 100+ lab kits for Senior Design courses soldering surface-mount ICs and packaging sensors and passive components. from electronics stock.

Najafi Lab | Atlanta, GA *August – December 2023*
Undergraduate Research Assistant
Computational Biological Sciences lab focused on mapping the cortical and cerebellar mechanisms to ultimately promote the treatment of neurological disorders.
- Prototyped experiments to understand prefrontal cortex decision making to treat schizophrenia.
- Reduced light pollution in neural imaging by designing a 3D printed shield on 2P scope increasing overall efficacy of day-to-day experiments.

Highlighted Projects

A Real, Simple Tuner | *Discovery Project* *Spring 2024*
Self-guided project to create a small, simple, and portable instrument tuner using the SAMD21 MCU, microphone, and 1 LED.
- Researched fundamentals of acoustic waves and its interference 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 manufactured 3 iterations of control and power distribution board to make a quadcopter from scratch.
- Devised Flow Simulation Analysis in SolidWorks to optimize drone body and weight down to 200g

Student Organizations

GT RoboJackets – RoboWrestling | Lead Mentor *August 2023 – Present*
- Guide and collaborate with new members in schematics & CAD models. Mentoring three teams through hands-on workshops and "peer-to-peer" design reviews.
- Designed 500g sumo wrestling robot integrating Teensy 4.1 MCU, IR sensors, and autonomous strategy software.

GT SiliconJackets – Tapeout Club | Digital Design Subteam Member *Spring 2023 – Present*
- Designed and implemented Greatest Common Divisor calculator in Verilog.
- Outlined necessary signals for busses between ALU components.