Amar Persaud

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EDUCATION

Townsend Harris High School, New York, NY **2014 - 2018**

Relevant Courses: Honors Physics, AP Physics A, Calculus, AP Calculus BC, AP Computer Science A

Stony Brook University, New York, NY **2018 - 2023**

Relevant Courses: Advanced Programming and Data Structures, Electrical Circuit Analysis, Microelectronic Circuits, Embedded Microcontroller Systems Design, Deterministic and Random Signals and Systems, Modern Circuit Board Design and Prototyping, Integrated Electronics, Semiconductor Devices, Communication Systems, Computer Vision, Analog Integrated Circuits, Senior Design

SELECT PROJECTS

Senior Design Project: High Current Multi-Phase Buck Converter **September 2022 - Current**

- Worked with others to design and fabricate a high current, low-cost, multi-phase buck converter, supporting an output current of 100A, and with efficiency of 90%.
- Aided in circuit schematic design, performed PCB design and assembly.

Portable Eurorack Compatible Synthesizer with Voice Cards (Fusion 360) **November 2022**

- Designed, fabricated, and assembled 5 interconnecting PCBs using surface mount components
- Designed and assembled a Lithium-Ion based power supply with ±12V and ±5V output and USB-PD charging and battery under/overvoltage and short circuit protection.

Machine Learning Face Autoencoder (Python, TensorFlow) **November 2021**

- Designed and trained autoencoder neural network model for computer compressing images of faces into a latent space and generating images of faces. TensorFlow on the NIST Celeb A dataset

Electronic Braille Display Module (Fusion 360) **September – December 2020**

- Design for an affordable electromagnetic braille display module for the visually impaired, using latching solenoids as opposed to more expensive piezoelectric elements, with integrated H-bridge drivers and controller
- Lowered estimated cost of display modules from roughly $60 per character to about $10 per character.

CISC CPU and Emulator (C#) **2018 - 2020**

- Designed for a Complex Instruction Set (CISC) processor emulated in software and for implementation in hardware with TTL and CMOS components

N-Body Simulation (C#, OpenCL, OpenGL) **August 2017**

- Wrote a particle simulation with gravity based on the Verlet integrator, utilizing the Barnes-Hut quad-tree optimization algorithm.
- Utilized open-source technologies for graphical and computational acceleration

TECHNICAL SKILLS

Software:

- Windows, Linux, Visual Studio, Fusion 360, PSpice, LTSpice, MATLAB, Microchip (Atmel) Studio, Git

Programming and Markup Languages:

- C, C#, C++, Python, AVR Assembly, Java, LaTeX, HTML, CSS, JavaScript, PHP

Hardware:

- Oscilloscopes, Logic Analyzers, Bench Power Supplies, Multimeters, Function Generators
- Experience with programming and flashing AVR, PIC, and STM microcontrollers via JTAG, SWD, and UPDI

LEADERSHIP EXPERIENCE

ModIT - Club, Townsend Harris High School, *Director of Software Engineering* **2016-2018**

- Taught programming to club members. Aided those working on projects requiring programming