CYNTHIA WU
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Education

Sep. 2022 - Dec. 2023	M.S. in Electrical Engineering at Columbia University (GPA: 4.073/4.33)
Aug. 2018 - May 2022	B.E. in Electrical Engineering at Stony Brook University, Summa Cum Laude (GPA: 4.0/4.0)

Employment

May 2022 - Aug 2022	Computational Pathology Intern at Pfizer: Improved image processing workflows by creating Python scripts to transform .czi and .svs files into .tif files.
May 2021 - Aug 2021	Design Verification Intern at Hewlett Packard Enterprise: Improved tools/flow efficiency for designing and verifying Slingshot network ASICs using Perl (modified a command line tool). Reduced compute usage by approximately 30%. Added a feature to more efficiently search databases using Python (Tkinter/SQLAlchemy/Swarm API).
Jan 2020 - May 2020	iCreate Fabrication Team Specialist for iCreate at Stony Brook University: Trained 10+ people to use the laser cutters, maintained makerspaces.
Jun 2019 - Aug 2019	NYAS Mentor at New York Academy of Sciences: Educated 24 elementary and middle school students on critical aspects of coding as a member of the Summer 2019 Hack Your Garden program.

Teaching Assistant Experience

Aug 2020 - Dec 2020	Teaching Assistant for ESE 118 (Digital Logic Design) at Stony Brook University: Assisted students on assembling and analyzing their circuits in the lab and explained homework concepts and solutions during weekly office hours.
Jan 2020 - May 2020	Teaching Assistant for ESE 124 (C Language) at Stony Brook University: Taught students the lab material for the week, tutored students in bi-weekly sessions, mentored students during office hours.
Jan 2019 - May 2019	Teaching Assistant for AMS 261 (Calculus III) at Stony Brook University: Graded over 200 students and taught students how to do their homework weekly.

Research Activities

Jan 2023 - Present	Research Volunteer for Translational NeuroElectronics Lab at Columbia University: Trained to handle behavior experiments with rats. Used Matlab and Neurscope to examine and process electrophysiological sleep signals.
Dec 2021 - Aug 2022	Part-time Undergraduate Researcher on GIS and Big Data Driven Studies for Cancer Screening at Stony Brook University: Trained to handle sensitive health data. Used SQL to acquire health data through a Linux environment (MobaXterm) on a virtual machine. Created choropleths using health data

	and census data on ArcGIS. Plotted large data sets using Python.
Sep 2020 - Sep 2021	Research Volunteer for Covid-19 Wristband at Stony Brook University: Worked with another student to prototype (program/debug/assemble) an electronic wristband.
May 2020 - Aug 2020	Summer Research Assistant on Pollution during Covid-19 at Stony Brook University: Found databases on pollution and analyzed the data by programming with Google Earth Engine and Matlab.

Volunteering (Non-Research Related)

Aug 2018 - Apr 2019	Electronics Shop Volunteer/Assistant at Stony Brook University: Assisted in OrCad drawings, coding, soldering, and component placement for various physics department projects.
Nov 2017 - Jan 2018	Housing Works Volunteer at Housing Works in NYC: Resolved and communicated customer issues to management, interfaced with customers, organized inventory.

Coursework Projects

Fall 2022	Kaggle Single Cell Project (individual project): Predicted gene expression from chromatin accessibility and protein levels from gene expression for single cells for a Kaggle competition (https://www.kaggle.com/competitions/open-problems-multimodal/data) and documented the process.
Fall 2021 - Spring 2022	Senior Design Project (group project): Used machine learning techniques to separate stressed and unstressed voices and wrote regular project reports.
Fall 2021	Machine Learning Course Projects (group projects): Used the scikit-learn library to explore and classify various data sets from the UC Irvine Machine Learning Repository through different machine learning methods.
Fall 2021	Computer Vision Course Projects (individual projects): Completed various projects exploring the principles of computer vision techniques (some from scratch and others using TensorFlow).
Fall 2020 - Spring 2021	Embedded Microcontroller Systems Design Course Projects (individual projects): Wrote and implemented assembly and C code in AVR Studio/Microchip Studio for understanding the fundamentals of embedded microcontroller systems.
Spring 2020	Gaussian Random Process Project (individual project): Learned to and used Matlab to visualize Gaussian Random Process realizations.
Spring 2019	Maze Algorithm Project (group project): Our group of two placed second in designing a maze-solving C program in our C Programming class of 117 students.

Extracurricular Activities and Extracurricular Projects

Fall 2022	Resources Web Project (personal project): Created a website on GitHub pages to act as both a personal portfolio and as a programming reference. GitHub link: https://github.com/potionPI/archiveblog | Site link:

	https://potionpi.github.io/archiveblog/
Summer 2019	Music Box Project (personal project): Designed and assembled a breadboard music box and keyboard toy with Atmel Studio using an Atmel chip and C programming.
Summer 2019	Arduino Backlit Keypad (personal project): Designed a PCB using Eagle and assembled an Arduino Nano based backlit USB keyboard. Designed the laser cut enclosure using Fusion 360.
Summer 2019	Revisiting LED Matrix (personal project): Added push buttons and Arduino code to move lights across the Fall 2019 LED Matrix project.
Spring 2019	Robotics Mentee Project (group project): Designed the PCB which was selected as the final PCB design for a Simon Says game for our robotics club using Eagle.
Spring 2019	Atmel Seven-Seg Clock (class project): Assembled and soldered a clock. Tested clock using the digital oscilloscope and digital multimeter provided by our professor.
Spring 2019	Creating logic gates with BJTs (personal project): Made NOT, AND, OR, NAND, NOR, and XOR logic gates with 2N2222 transistors. Documented the schematic used.
Fall 2018	Catapult Robot (group project): Designed and assembled the electrical wiring for an Arduino Uno based robot that drove, sensed obstacles, and tossed a ball. Implemented a remote control system for testing.
Fall 2018	Robotics Internal Competition Robot (group project): Rewired and designed the mechanical structure of an RC car.
Fall 2018	LED Matrix (personal project): Soldered a board with an 8x8 matrix of LEDs and scrolled numbers across the matrix using an Arduino Uno.
Fall 2017	Custom Tumblr Webpage (personal project): Created a custom Tumblr page template using HTML/CSS/JavaScript. Link: https://hp-mp-pots.tumblr.com/
Fall 2017	Jekyll Site (personal project): Created a website on GitHub Pages to learn how to use and customize Jekyll sites. GitHub link: https://github.com/potionPI/Interclamnetted
Spring 2017	Scavenger Hunt Website (personal project): Created a website on GitHub Pages which involved looking for clues and finding objects to click on in order to reveal a final message. Used HTML/CSS/JavaScript. Link: https://potionpi.github.io/11-kinds-of-loneliness/html/ (press ‘R’ to enter the portion of the site with words).
Spring 2017	Storybook Web Project (personal project): Created an artistic website on GitHub Pages to explore a thesis for an English project on The Great Gatsby. Used HTML/CSS/JavaScript. GitHub link: https://github.com/potionPI/thegreatgatsby | Site link: https://potionpi.github.io/thegreatgatsby/ | Project proposal link: https://potionpi.github.io/thegreatgatsby/proposal.html

Academic Honors

Dean’s List (Stony Brook University)
2022 Ward Melville Valedictorian Award (Stony Brook University)
2022 Armstrong Memorial Research Foundation Award (Stony Brook University)
2022 Tesla Scholar (Columbia University)
2023 MS EE Honors Student (Columbia University)

Clubs
Stony Brook Robotics Team

Honor Societies
Tau Beta Pi

Technical Skills

Programming languages	SQL, Python, Perl, Matlab, C/C++, Java, Html/CSS/JavaScript, Assembly
Electrical test equipment	Oscilloscopes, function generators, DMMs, power supplies
Microcontrollers	Arduino (Arduino IDE), AVR (Atmel Studio 7/Microchip Studio)
Electrical CAD/Circuit Design and PCB design	Orcad Capture, Eagle, PSpice
Mechanical CAD	Autodesk Inventor, Fusion 360
Prototyping	Bread boarding, soldering, debugging circuits

MOOCs
SQL for Data Science

Certifications
Lean Six Sigma White Belt Certification, Lean Six Sigma Institute, May 2022