

VRIDDHI GOENKA

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EDUCATION

Duke University, Durham, NC

B.S.E. Electrical and Computer Engineering | B.S. Computer Science | Innovation & Entrepreneurship Certificate

Durham, NC

August 2023 – May 2027

GPA: 3.9/4.0

Relevant Coursework: Computer Architecture, Data Structures & Algorithms, Fundamentals of Electrical and Computer Engineering, Engineering Design and Communication, Linear Algebra, Calculus, Technology and the Public, Product Management

Activities and Honors: Delta Sigma Pi (Co-Ed Professional Business Fraternity), Rewriting the Code Durham, Duke University Dean's List 2023, Duke International Guide 2024, Executive Member at Duke Technology Scholars (DTech), Duke Society of Women Engineers (SWE) Mentor

Aditya Birla World Academy

IB Diploma Program (41/45) | AP Computer Science A (5/5) | IGCSE Curriculum (9/9 A*)

Mumbai, India

July 2019 – May 2023

Activities and Honors: Student Council President, Deputy Head of TEDx Club, Student Council Cultural Captain, Deputy Head TEDx Club, Model United Nations Club Head, Captain of Women Varsity Soccer Team, Associate of Trinity College London (ATCL) Diploma

WORK EXPERIENCE

DukeEngage

Electrical Design Engineer

Kampala, Uganda

June 2024 – August 2024

- Designed and developed **C++** based **Arduino** device 'TrioTemp', a cost-effective medical device for low-income hospitals in Kampala that measured and displayed temperatures of **3 babies** in a single incubator to detect neonatal sepsis and hypothermia in the NICU.
- Calibrated **3+** temperature sensors, using the **Steinhart-Hart Equation** with **NTC thermistors**, achieving an accuracy rate of $\pm 0.1^{\circ}\text{C}$ for precise skin temperature measurement; implemented an integrated buzzer and button for nurse alerts.

EcoTech (Startup)

Product Engineer

Durham, NC

October 2023 – May 2024

- Spearheaded the development of 'EcoBin,' an advanced waste management system that utilizes machine learning algorithms in **Python** for image recognition to sort waste between recyclable and non-recyclable with a **94%** accuracy; secured a **\$5,000** fund at Duke's CoLab.
- Utilized **CAD** and **VCarve** for precision design and fabrication of the compartments of the bin; coordinated weekly strategy meetings with other product engineers to enhance collaboration, streamline the development process, and optimize product efficiency.

Duke Pratt School of Engineering

Teaching Assistant

Durham, NC

January 2024 – Present

- Assisted **250+** students in coding **C++** in building **Arduino** circuits with input/output components (**buzzer, LEDs, buttons, soldering**) and using laser-cutting (Adobe Illustrator, Ruby Trotec), 3D printing (Fusion 360, OnShape), and woodworking (miter and band saws).
- Created a decision-making guide for students on powering Arduino projects comparing USB, barrel jack, and Vin options.

Prachi Electronics

Student Intern

Mumbai, India

May 2022 – July 2022

- Shadowed the design of a 4x5 inch 'Protection Whistle' from prototype to final product for my non-profit organization Kanya Suraksha (Girl Safety) capable of emitting sounds up to **120 dB**, audible from **18 meters away** using CNC machining and SolidWorks.
- Crowdfunded with **20+ students**, raising **INR 5,39,300 (~\$7,000 USD)** and distributed **5000+** whistles in 3 train stations in Mumbai.

LEADERSHIP

Girls Who Code (Facilitator)

- Mentored students from Northern High School weekly in coding concepts through Women in Tech initiative at Duke; taught **Python** and **JavaScript** while fostering problem-solving and computational thinking skills in data structures and algorithms.
- Led hands-on coding activities using the Girls Who Code curriculum, promoting technical skills like **loops, conditionals, and functions**.

Women in Technology (Social and Publicity Chair)

- Led promotional campaigns for events through social media, email newsletters, and campus outreach, boosting event attendance by **35%**.
- Collaborated with industry professionals to organize speaker sessions and networking events, connecting students with mentors in tech.
- Managed logistics and marketing for coding competitions, fostering a competitive yet supportive environment for skill development.

PROJECTS

Altitude Analyzing and Servo Bot

- Created an **Arduino**-controlled bot that could complete various challenges, including line following, color identification, wireless communication, and object detection; integrated sensors, servos, and LEDs to enable autonomous navigation, obstacle detection.
- Programmed in **C++** to control servos, LED lights, and communication output, by interpreting data from **QTI sensors, RGB color sensors, whisker wires, and XBee Modules** and implemented an **ultrasonic sensor** input to recognize the height of objects.

Data Structures and Algorithms Projects

- Autocomplete: Java | Created an autocomplete algorithm with weighted prefixes using binary search and HashMaps.
- Markov: Java | Built a random text generating algorithm using HashMaps using training text using a Markov process.
- Huffman: Java | Used the Huffman coding algorithms to create a program that compresses and decompresses a file.
- DNA: Java | Implemented an algorithm to model DNA splicing operations to reverse, index, cast, and append nodes using internal linked lists.

Customizable Slide and Lock Lunch Trays for Durham Public Schools

- Developed customizable, reusable lunch trays with **7+** deep dish compartments, focusing on **user experience** and scalability in product design.
- Filed for a non-provisional **US design patent (US 29936005)** to protect the tray system, demonstrating proficiency in the product lifecycle.

TECHNICAL SKILLS AND INTERESTS

Coding Languages: Highly Proficient: Java, C++ | Proficient: C, Python | Beginner: JavaScript, R, SQL, Ruby

Technical Skills: Excel, Arduino, MATLAB, Maple, Unix, VS Code, Git, Adobe Illustrator, CAD, VCarve, SolidWorks, Autodesk Fusion 360, OnShape

Foreign Languages: Spanish (Business Proficiency), Hindi (Native)

Interests: Weightlifting, Telenovelas, Lebanese Cuisine, Coffee Tasting and Cafes, FinTech, Travelling, Community Service, Afrobeats, UK Rap