Tanishq Aggarwal

301 Trinity Ct. 2, Princeton, NJ 08540
+1(609)-356-8061
ta335@cornell.edu
tanishqaggarwal.com
LinkedIn tanishqaggarwal
GitHub tanishqaggarwal

Programmer | Engineer | Physicist

"People are mistaken when they think technology automatically improves." -- Elon Musk

Education

Cornell University B.S. Engineering (exp. 2020). Applied Physics and Computer Science. GPA 3.86. *Aug. 2017 - Present*

- Relevant Coursework: Digital Logic and Computer Organization; Embedded Systems; Objected-Oriented Programming and Data Structures; Rigid-Body Dynamics; Honors Electrodynamics, Waves, Quantum Mechanics, and Thermodynamics; Mathematical Physics; Discrete Mathematics; Nanoscience and Nanoengineering; Differential Equations; Linear Algebra
- Teaching Assistant for Discrete Mathematics (CS2800) for Fall 2018.

Princeton University Took mathematics courses after exhausting available high school options. *Sep. 2016 – Feb. 2017*

West Windsor-Plainsboro High School South Graduated with distinction (top 5 percent of class). *Sep. 2013 – Jun. 2017*

Skills

Programming	Python, HTML5, React Native, Firebase, Google App Engine, MEAN, Javascript/JQuery, Node.JS, x86/ARM Assembly, C/C++, Verilog, Embedded Systems (Arduino, Beaglebone, Teensy, FRDM), Solidity/Truffle/Web3, Java, Android, LaTeX, Mathematica
Other	Blockchain, Cybersecurity, Linux System Administration, SOLIDWORKS, ANSYS, 3D Printing, Electrical Engineering/Manufacturing, Autodesk Eagle, ESD lab training
Hobbies	Badminton, weight lifting, reading, software/electronics projects

Technical Experience

Space Systems Design Studio *Cornell University*
Software and Controls Engineer—Pathfinding Autonomous Navigation (PAN) *Aug. 2018 - Present*

- Developing flight controller software for this 3U Cubesat project using FreeRTOS on Teensy 3.5.
- Writing software interfaces for peripherals (Gomspace NanoPower P31U, IMUs, Piksi GPS), and robust, fault-tolerant communication protocols between satellite and ground.

Cornell Mars Rover *Cornell University*
Mechanical Engineer--Drives/Frame Subteam *Aug. 2018 – Oct. 2018*

- Designed, CADded, and ANSYS-tested a vibration-isolating carbon fiber mount for the drive camera.

Carbon-12 Labs *New York, NY*
Software and Blockchain Engineer *Summer 2018*

- Lead developer for company's crypto product. Wrote ~100 test cases with 99% code coverage. (2000 lines of code)
- Passed security audit by New Alchemy, Inc. with 0 critical issues and 5 moderate issues.
- Lead backend developer (using Flask and Node.JS) for the fiat-onramps for CarbonUSD. (5000 lines of code)

Space Systems Design Studio *Cornell University*
Team Co-Lead--Control-Moment Gyroscope (CMG) Polyhedral Rover *Sep. 2017 - May 2018*

- Significant progress on a C++-based control system for this JPL-funded concept rover design, based on a CMG.
- Designed the electrical architecture for the rover, including sensors, power distribution systems (for 500 W), and PCB interfaces (capes) for the central microcontroller (BeagleBone Black), as well as certain subsystems with Arduino.
- Responsible for coordinating integration of mechanical and electrical architectures.

Princeton Plasma Physics Laboratory *Princeton University*
Project Intern--Interactive Plasma Physics Experience (IPPEX) *Spring 2017*

- Developed experience in physical computational simulation in Javascript using numerical methods and PIXI.JS.

New Jersey Governor's School of Engineering and Technology *Rutgers University*
Student Researcher/Mechanical Engineer--Experimental All-Terrain Rover *Summer 2016*

- As part of a four-person team, designed (using SOLIDWORKS) and partially constructed a 4-wheeled rover capable of navigating over rough terrain, with each wheel having 6 extendable linear actuator "spokes".

Hackathon Projects
Co-Developer

- EarLens--an Android app using speech-to-text and text-to-speech APIs in a way that enables deaf people to communicate more naturally. The app was recognized as among the top 15 developed at PennApps XIV.

Honors and Awards

2017,18	**Dean's List** Cornell University, College of Engineering	*Ithaca, NY*
2017	**10th Place**, National Science Bowl (Team Captain)	*Philadelphia, PA*
2016	**Gold Division Qualifier**, USA Computing Olympiad	*Worldwide*
2016	**Semfinalist**, PennApps XIV	*Washington, D.C.*
2016	**Honorable Mention**, Moody's Mega Math Challenge	*USA*
2015	**3rd Place,** HSCTF (Team Captain)	*USA*
2015,16,17	**Qualifier**, American Invitational Mathematics Exam. Highest Score: 8	*USA*