

Tanishq Aggarwal

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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 3.79.	<i>Aug. 2017 - Present</i>
	<ul style="list-style-type: none">Relevant Coursework: Embedded Systems; Objected-Oriented Programming and Data Structures; Rigid-Body Dynamics; Honors Electromagnetism; Honors Waves/Thermodynamics/Quantum and Statistical Mechanics; Mathematical Physics; Discrete Mathematics; Nanoscience and Nanoengineering; Differential Equations; Linear AlgebraTeaching Assistant for Discrete Mathematics (CS2800) for Fall 2018.	
Princeton University	Took mathematics courses in 12 th grade after finishing available school courses.	<i>Sep. 2016 – Feb. 2017</i>
West Windsor-Plainsboro High School South	Graduated with distinction (top 5 percent of class).	<i>Sep. 2013 – Jun. 2017</i>

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	<i>Cornell University</i>
Software and Controls Engineer—Pathfinding Autonomous Navigation (PAN)	<i>Aug. 2018 - Present</i>
<ul style="list-style-type: none">Developing flight controller software for 3U Cubesat project using ChibiRTOS on Teensy 3.5.Experimentally testing steering and control laws using MATLAB Simulink.Completed software interfaces for peripherals (Gomspace NanoPower P31U, IMUs, Piksi GPS) and communication protocols between satellite and ground.Assembled circuit boards and fixed mechanical CAD issues to help team meet end-of-semester part ordering deadlines.	
Cornell Mars Rover	<i>Cornell University</i>
Mechanical Engineer--Drives/Frame Subteam	<i>Aug. 2018 – Oct. 2018</i>
<ul style="list-style-type: none">Designed, CAD-drafted and ANSYS-tested a vibration-isolating carbon fiber mount for the drive camera.	
Carbon-12 Labs	<i>New York, NY</i>
Software and Blockchain Engineer	<i>Summer 2018</i>
<ul style="list-style-type: none">Lead developer for company's crypto product, using Solidity on the Ethereum blockchain.Delivered quality, well-tested code, with 99 percent code coverage and ~100 test cases across 2000 lines of code.Passed security audit by New Alchemy, Inc. with 0 critical issues.Developed backend (using Flask and Node.js) for the fiat-onramps for CarbonUSD. (5000 lines of code)	
Space Systems Design Studio	<i>Cornell University</i>
Team Co-Lead--Control-Moment Gyroscope (CMG) Polyhedral Rover	<i>Sep. 2017 - May 2018</i>
<ul style="list-style-type: none">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 (500W throughput), 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 designs.	
New Jersey Governor's School of Engineering and Technology	<i>Rutgers University</i>
Student Researcher/Mechanical Engineer--Experimental All-Terrain Rover	<i>Summer 2016</i>
<ul style="list-style-type: none">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	
<ul style="list-style-type: none">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	<i>Ithaca, NY</i>
2017	10th Place , National Science Bowl (Team Captain)	<i>Washington, D.C.</i>
2016	Gold Division Qualifier , USA Computing Olympiad	<i>Worldwide</i>
2016	Semfinalist , PennApps XIV	<i>Philadelphia, PA</i>
2016	Honorable Mention , Moody's Mega Math Challenge	<i>USA</i>
2015	3rd Place , HSCTF (Team Captain)	<i>USA</i>
2015,16,17	Qualifier , American Invitational Mathematics Exam. Highest Score: 8	<i>USA</i>