



Hi! I'm looking for an internship for January 2017, and for summer 2017!

farita.me
Farita Tasnim

High Efficiency, Nanopower Voltage Step-Up Converter

Current Endeavor: Creating MIT HackFashion

Ordering Information

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Cambridge, 02139 U.S. Citizen

Electrical Characteristics, cont.

NASA Space Program & High Altitude Balloon: Sep 2011 - May 2015, 1,100+ hours: Lead systems engineer of a team of 15-20 students. Sent payloads equipped with custom APRS trackers and data loggers over 100,000 feet into the atmosphere to obtain data of the effect rising altitude on physical and biological phenomena. Prepared to launch a 10 cc. nano-satellite to gather data on solar winds and sunspots for the NASA CubeSat program.

Independent Laboratory Construction: Constructed a microelectronics laboratory in my room in which I can design, manufacture, test, and debug professional caliber PCB's. Made my own reflow soldering oven, fixed a broken \$50 Tektronix 2440 oscilloscope, bought a boomscope.

Non-Electrical Characteristics

Research Science Institute, Materials Science Approach for Increasing Solar Cell Efficiency: June 2014 - August 2014, 400 hours: Developed two novel, purely chemical procedures to coat titania nanotubes with iron oxide nanoparticles. Developed new solid-state solar cells with a higher electron diffusion coefficient down the nanotubes and 30% increased optical absorptivity.

Researcher at Auburn University Neuropharmacology Laboratory: Jan 2012 - Jan 2013, 300 hours: Conducted single channel electrophysiology to discover that AMPAR excitation was retarded by 70% due to presence of nicotine in prenatal stages. Concluded that upregulation of heteromeric nAChRs containing $\alpha 4$ and $\beta 2$ subunits, which form most high-affinity nicotine binding sites in the brain, causes a decrease in AMPAR function as the agonist nicotine "tricks" the glutamatergic receptors into allowing it to bind.

Accolades

NCWIT Collegiate Award
Honorable Mention (\$2.5K)
MakeMIT 2nd Place Team
Microsoft Scholarship (\$10K)
Proton Onsite Energy
Scholarship Winner (\$36K)
Regional STAR Student
FIRST Robotics Regionals,
First Place Alliance Captain
and Regional Winner
NCWIT Awards for
Aspirations in Computing
National Runner Up and
State Winner
Math Prize for Girls

Georgia Governor's Honors
Program: Mathematics
National Merit Scholar
Semifinalist
Research Science Institute
Scholar (3% acceptance rate)
Georgia ARML Team
MIT THINK: Ntl. Runner Up
FLAG French Foreign Language
Spoken Contest Perfect Score
SAT Score of 2380 in 9th grade
FIRST Robotics Rookie-All Star
Award
Georgia MATHCOUNTS,
1st Place Overall

Features

Massachusetts Institute of Technology Columbus High School
Major: Electrical Engineering Valedictorian
Class of 2019; In-Major GPA: 5.0 Class of 2015

Maximum Ratings

PCB Design	●●●●●	Adobe Photoshop	●●●●●
PCB Layout	●●●●●	Adobe Illustrator	●●●●●
SolidWorks	●●●●●	Autodesk Inventor	●●●●●●
PTC Creo	●●●	Ham Radio	●●●●●
C	●●●●●	Objective-C	●●●
Java	●●●●●	LTSpice	●●●●●

Electrical Characteristics

Electrical Engineering Intern, Microsoft Hololens: June - May 2016

Analog Electronics Lab Final Project: March - May 2016: Developed a custom, high precision fluxgate magnetometer made with an amorphous metal core and its accompanying instrumentation circuit which gathers data on magnetic field using phase demodulation and can be used as an ammeter.

Electrical Engineering Intern, Intel Corporation, New Devices Group: June - Sep 2015: Created chips, firmware, and integrated product to harvest and analyze natural sources of energy from action sports to a) charge phone batteries and b) power sensors without batteries, which reduces form factor, maintenance, and market advantage.

Independent Research for Harvesting Ocean Wave Energy: Aug 2014 - May 2015, 730+ hours: Developed a novel adaptive energy harvesting system. Designed and debugged the mechanical structure along with a PCB, programmed in C. Device calculates raw input energy of waves and converts the generator's raw AC power into usable energy in one of three selectable modes: 1) battery charging, 2) electrolysis for hydrogen production, and 3) resistor load, and sends the data via WiFi to a custom iPhone app.

Independent Research for Increased Solar Energy Harvesting

Efficiency: Oct 2013 - present, 600+ hours: Constructed a compact solar site surveyor device (PCB, C firmware, and mechanical structure) that follows the sun as it moves across the sky and measures the solar current generated for any given spot. Device communicates via Bluetooth to an iPhone app I am developing to track solar output of different locations, helpful in determining the optimal placement of solar cells in cities for highest return-on-investment.

FIRST and BEST Robotics: Jan 2012 - May 2015, 2,000+ hours: Captain of a team of 15-20 students. Program ran like a real engineering company. Created a 120-pound robot in 6 weeks in the spring and a 24-pound robot in 6 weeks in the fall. Instilled infallible work ethic and dedication in team members, ensured effective CAD design, wired the electronics, and wrote code in Java and C for sensor input, actuator control, vision processing, automated sequences, and joystick control. Passing down these skills to younger team members. Helped 4 students obtain Ham Radio licenses.