

Justin K. Htay

+1-678-939-0535 | justinhhtay@gmail.com | justinhhtay.github.io | US Citizen

OBJECTIVE

Electrical engineering and mathematics major with experience at a national research laboratory seeking a DSP internship in Spring/Summer 2019. Strengths include significant experience coding in MATLAB, Python, bash, and C++ as well as a strong math background in DSP techniques. Additional experience in Linux environments and peer leadership as Course Manager for large introductory programming course.

EDUCATION

- Georgia Institute of Technology** August 2016 - May 2021
 - Bachelor of Science in Electrical Engineering* Atlanta, GA
 - Bachelor of Science in Mathematics* GPA: 4.00

EXPERIENCE

- Georgia Tech Research Institute (GTRI)** January 2017 - August 2018
 - High Performance Computing Co-op, Advanced Concepts Laboratory (ACL)* Atlanta, GA
 - Applied optimization techniques such as genetic algorithms to design antennas using the FDTD method.
 - Designed FSS for use in novel periodic structures through innovative design process.
 - Created dashboard for displaying ACL achievements and visualizing cluster resource usage that is widely utilized by engineers for status updates and by managers to impress customers.
 - Fully installed five major ACL computing resources on the RHEL operating system and solved issues on five others, extensively utilizing Bash scripting and knowledge of Linux as well as problem-solving skills.
 - Created Python software to achieve major clustering tasks such as storing old projects and installation of computing resources.
- Georgia Tech College of Computing** January 2017 - present
 - Teaching Assistant, CS1371 (MATLAB)* Atlanta, GA
 - Taught 1.5-hour recitations and held 3 hours of office hours weekly for a section of approximately 50 students.
 - Repeatedly recognized by fellow TAs for completing questions and for assisting others by covering office hours.
 - Wrote 20+ homework problems on a wide range of topics and difficulty for use by over 1000 students each semester.
 - Served as Course Manager and Homework Lead for two semesters and was tasked with ensuring smooth operation of the entire course as well as production of homework sets for students.
 - Performed major compatibility updates to in-house MATLAB packages essential for operation of the class.
- National History Bee & Bowl** May 2015 - July 2018
 - Writer* Tenafly, NJ
 - Wrote 800+ questions with 99% acceptance rate by editors used for history competitions around the globe.
 - Wrote 40%+ of a set on short notice and recognized by the Director for Question Production for outstanding contributions.

PROJECTS

- Efficient Normal Random Number Generation** June 2018 - August 2018
 - Implemented novel rejection-free method for generating normally-distributed random numbers in MATLAB and C.
 - Optimized to be faster than original ziggurat method for random number generation.
- 3D Printed Fragmented Aperture Antenna** January 2017 - June 2017
 - Designed 3D-printable antenna using GTRI's fragmented approach generalized to 3D space.
 - Implemented a graph theory-based connectivity algorithm in Python to ensure manufacturing feasibility.
 - Wrote a paper being prepared for publication after printed antennas had good measure-model agreement.

COURSEWORK

- **Circuits Laboratory:** Design and construction of filters and amplifier circuits, use of oscilloscope to verify output of circuits, and modeling of circuits using SPICE software.
- **Microelectronic Circuits:** Introduction to semiconductor physics, design and applications of diodes, BJTs, MOSFETs, and op-amps.
- **Electromagnetics:** Theory and applications of Maxwells equations, properties of waves and transmission lines, introduction to principles of antennas.
- **Signals and Systems:** Applications of signal processing techniques in continuous time, characterization of linear circuits in the Laplace-domain, introduction to stability and PID control.
- **Introduction to Signal Processing:** Introduction to signal processing techniques (convolution, sampling, Fourier series and transform) in discrete time, introduction to digital filters and their implementation in MATLAB.
- **Engineering Software Design:** Introduction to C++ programming and principles of object-oriented design, implementation on mbed platform.
- **Digital Design Laboratory:** Design of logic circuits using graphical CAD, programming in VHDL, circuit implementation on FPGA, project reports and documentation
- **Intro to Probability and Statistics for ECE:** Introduction to probability theory and statistics, random variables, applications to information theory
- **Applied Combinatorics:** Introduction to combinations, recurrence relations, generating functions, posets, graph theory and algorithms, number theory
- **Intro to Number Theory/Cryptography:** : Basic results in number theory such as Euclidean Algorithm, Chinese Remainder Theorem, primitive roots, introduction and implementation of RSA public-key cryptography

SKILLS

- **Programming:** MATLAB, Python, bash, C, C++, Java, JavaScript
- **Software:** Linux (Ubuntu, RHEL), LaTeX, vim, Altera Quartus II, NI LabVIEW, GitHub, GitLab, LTSPICE, NI Multisim, Mathcad
- **Hardware:** ARM mbed microcontroller, FPGAs, Oscilloscope, Logic analyzer, Function generator
- **Communication:** Design proposals, technical reports, instruction manuals, presentations (large and small audiences)
- **Languages:** English (native), Spanish (beginner)
- **Interests:** Piano (15+ years), Chorus (5+ years)

LEADERSHIP/ACTIVITIES

- **Academic Quizbowl Team** August 2016 - present
Treasurer/President Atlanta, GA
 - Raised over \$3000 annually by hosting collegiate tournaments attended by schools around the Southeast.
 - Increased club attendance by 50% and sent teams to multiple tournaments yearly.
 - Organized outreach to local high and middle school quizbowl circuit by having club members volunteer at multiple high school tournaments and allowing top-performing high schools to participate in college tournaments.
- **Office of Minority Educational Development** June 2018 - August 2018
Volunteer Teaching Assistant, Challenge Program Atlanta, GA
 - Taught CS concepts to group of 100+ incoming freshmen from underrepresented minorities.
 - Rewrote 20 homework assignments in 2 weeks

AWARDS, HONORS, AND SCHOLARSHIPS

- **David L. Smith Scholarship** November 2017
 - Scholarship awarded by the Georgia Engineering Foundation to a Georgia resident and engineering student.
- **Zell Miller Scholarship** August 2016
 - Scholarship awarded to high-achieving Georgia high school students for attending a Georgia college.