Thomas Ottaway
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Education

- **Brown University** — Providence, RI
  Applied Math-Computer Science — *Expected Graduation May 2022*
  - Coursework: CSCI 0190 (Accelerated Introduction to Computer Science), APMA 0350 (Applied ODE's)
- **Albany High School** — Albany, NY
  Advanced Regents Diploma — *Sept. 2014 – June 2018*
- **Other**
  - 4.0 in Multivariable Calculus, Linear Algebra, Ordinary Differential Equations, and Physics IV from SUNY Albany
  - Supervised learning section of Coursera's machine-learning course

PAID COMPUTER SCIENCE EXPERIENCE

- **LingView (JavaScript, Node.js, React)** — Brown University
  Developer — *Sept. 2018 - Present*
  - Working with extensive preexisting code-base
  - Implementing efficient regex search over a large corpus
  - Exploring search technologies such Fuse, LUNR, and SOLR and determining the most appropriate tool
- **Math Co-op Website (Django, JavaScript, HTML, CSS)** — Brown University
  Developer — *Sept. 2018 - Present*
  - Full stack development
  - Custom admin page for a more user friendly experience
  - Extensive use of relational databases to allow the website to realize semantic connections
- **NYS ITS (Django, JavaScript, HTML, CSS)** — Albany, NY
  Student Assistant — *Jul. 2018 - Aug. 2018*
  - Re-imagined and prototyped systems for patient testing in the event of an outbreak (motivated by the shortcomings of NYS's response the Zika outbreak)
  - Built multiple automated systems for HL7 message generation to expand Remote Order Entry accessibility
  - Explored progressive web apps as a precaution against network failures

PROJECTS/VOLUNTEER

- **Exploring Numerical Methods (Python)** — *Oct. 2018 - Present*
  - Exploring algorithms for finding numerical approximations to differential equations using Python's numpy library
  - Learning more about plotting using matplotlib
- **Celina's Kitchen (Flask, SQLAlchemy, HTML, CSS, Bootstrap)** — Albany, NY
  Web/Database Developer — *Summer 2017 - Spring 2018*
  - Developed front- and back-end systems to store customer data and track orders
  - Worked with client to fit database to a unique and organic business model

Skills

- **Programming Languages/Frameworks** : Python, JavaScript, CSS, SQL, Pyret, Django, Flask, Node, React

activities

- Juggling (up to five objects), blues/swing dancing, running, music (clarinet and piano)

1. How were you first introduced to Computer Science? How have you continued to develop your technical skills and seek additional exposure to the field?

I was first introduced to computer science through my family. My father is an engineer and my grandfather worked with computers, so I was exposed early on to small projects using Lego Mindstorms (with the yellow brick). I continued writing small programs for robots, joining the high school robotics team in the 7th grade. However, it wasnt until the summer before my senior year that I began to dive into the field in earnest.

I started by taking MITs intro Python class followed by Stanfords introduction to machine learning course taught by Andrew Ng. I then began tackling projects. My mother had recently started her own private-chef business. I worked with a friend to prototype a database to store her clients information and food preferences and a user friendly web portal from which to access it. At Brown, I placed into an accelerated introduction to CS course which includes projects such as implementing our own versions of MapReduce and creating efficient methods for calculating shortest paths through a graph. In addition to my classes, I am also working two on-campus, web-development jobs where I am learning more about working on teams and building maintainable code.

2. What is your strongest programming language? How much experience do you have using the language? Go into detail about how you used this technical language. If talking about a group project, be specific about your role in the final product. (Examples can include projects, coursework, competitions, websites, previous internships, etc.)

As I fell in love with computer science, I chose to start by learning Python. It is still my go-to tool for any project. When I was asked to build a website for a math-outreach program at Brown, I immediately began developing in Django which allowed me to use my experience with Python classes to interface with the relational database more efficiently than I could using pure SQL.

Comfort with Python classes was also useful during my summer job with the NYS Office of Information and Technology Services. At this job, I worked with another intern to encode HL7 messages, a medical standard which has a deeply indexed format. This encoding, as a Python object, allowed us to handle HL7 messages in a far more intuitive manner, with fields, sub-fields, and sub-sub-fields, all being children of the larger segment class. At the end of the summer, we presented a new workflow for patient-testing registration during epidemics to a panel of NYS ITS managers. The workflow involved a new way to interface with the Remote Order Entry tool offered by the Department of Health, by allowing small health facilities without HL7 expertise to generate messages using a simple web form. The project was done entirely through pair programming since we only had access to a single development machine. This provided me with the opportunity to learn from my colleague and taught me how to think collaboratively.

3. At Google, we believe that a diversity of perspectives, ideas, and cultures leads to the creation of better products and services. Tell us about your background and experiences and how they make you unique.

Daniel Summerhill wrote that our lust for conformity has left our creativity behind. His words embody the soul of a group of poets, musicians, and social activists that often gathers in my mothers kitchen. From a young age, I sat in the corner and listened to artists such as Summerhill performed music and spoken word and discussed issues of race, gender, and sexuality. Eventually, I became more involved, helping build a garden behind a McDonalds and attending poetry slams. This community taught me to talk frankly about our society, and more importantly, to listen.

Learning when to speak and when to listen has been important in every facet of my life. I come from a high school with a student body which is 80% minority students. During the social turmoil of the past few years, I found myself in conversations with people who were personally effected by issues that I could only understand on an intellectual level. I learned that there is is something beyond this intellectual understanding, something I could only glean by listening. Sometimes it's useful to analyze and debate, but often its better to leave space for the voices of those with first-hand experience.

4. List the technical courses you will be taking next semester. If you have not registered for classes yet, please list the courses you plan on taking.

- CSCI 0320 Introduction to Software Engineering
- CSCI 0220 Discrete Math
- APMA 0360 Applied Partial Differential Equations I

5. List any clubs and/or organizations that you participate in.

- Juggling Club
- Running Club