

EDUCATION

Carnegie Mellon University & University of Pittsburgh

Ph.D. in Computational Biology

Pittsburgh, PA

August 2023–Present

Georgia Institute of Technology

B.S. in Computer Science, GPA: 3.25/4.00

Atlanta, GA

August 2016–May 2020

- Threads: Intelligence and Media
- Minor: Biochemistry and Chemistry
- Relevant Coursework: Data Structures and Algorithms, Design and Analysis of Algorithms, Deep Learning, Intro to Info Visualization, Computer Animation, Natural Language Processing, Biochemistry, Organic Chemistry

EXPERIENCE

Microsoft

Software Engineer

Redmond, WA

July 2020 - July 2023

- Develop next-generation distributed systems technology for ubiquitous computing in the Office of the CTO
- Ensure the health and availability of Azure Cloud's fleet as a member of the Datacenter Management (DCM) team
- Enhance and support agents for automatic booting and monitoring of Azure Compute clusters
- Automate recovery strategies for life-cycle agents in fleet for immediate mitigation and prevention of outages
- Collaborate with other Azure Compute teams to resolve internal or customer-reported resource availability issues within 48 hours

Pfizer

Machine Learning Intern

Cambridge, MA

May 2019 - August 2019

- Built and trained a multilayer perceptron (MLP) neural network using PyTorch to accurately predict mass spectrum (MS) based on compound structure for MS/MS technique on small molecules using a training set of 100,000 compounds
- Automated process to build data set of 100,000 molecular structures from internal database using specific molecular characteristics
- Constructed Dash app for mass spectrometry (MS) researchers to automate quality control checks of proteomic MS data using both supervised and unsupervised learning methods
- Developed support-vector machine (SVM) classifier trained on manually-labeled spectra data to identify faulty MS data based on spectra characteristics

Big Data and Quantum Mechanics Research Team

Student Researcher

Atlanta, GA

January 2018 - May 2020

- Used Georgia Tech supercomputing cluster to run density-functional theory calculations to approximate adsorption energies for nitrogen fixation on transition metal slabs
- Worked with teammates to develop hypotheses for energy trends from adsorption energy calculations
- Helped to consolidate results and write paper for publication
- Presented on team progress and blockers during weekly research team meetings

Leidos

Software Engineering Intern

Charlottesville, VA

May 2018 - October 2018

- Led text analysis portion of new plug-and-play machine learning product for military intelligence analysts to relate key terms found within intelligence documents
- Used ML and NLP libraries, such as GenSim, NLTK, and Tensorflow, with Python to implement Word2Vec algorithm and named-entity recognition for establishing context between listed entities
- Worked on a SCRUM team of 20 engineers spread over two offices to develop an architecture for plug-and-play ML algorithms
- Parsed diplomatic cables to construct 15 GB text corpus for use in demo of text analysis program

PUBLICATION

1. Comer, B.M., Lenk, M.H., Rajanala, A.P., **Flynn, E.L.**, Medford, A.J. Computational Study of Transition-Metal Substitutions in Rutile TiO₂ (110) for Photoelectrocatalytic Ammonia Synthesis. *Catalysis Letters* 151, 1142–1154 (2021).<https://doi.org/10.1007/s10562-020-03348-z>

SKILLS

- **Programming Languages:** Python (4 years), Java (5 years), C++ (1 year), C# (1 year), KQL (1 year), Processing (1 year), C (1 year), R (1 year)
- **Tools:** Bash, Linux, Git, Visual Studio, LaTeX, Jupyter, PyTorch, Keras, Tensorflow, NLTK, Docker, Dash, Plotly, Android Studio, RDKit, spaCy, Arduino, GenSim
- **Lab Techniques:** NMR, MS, and IR spectra analysis, gas and thin-layer chromatography, titration, recrystallization, distillation, gel electrophoresis, melting-point analysis
- **Languages:** Japanese (Adv Beginner)

PROJECTS

- Interpretability of Multi-Label Classifiers for Movie Genre Classification (PyTorch, 2020)
 - Constructed and compared a Naive-Bayes model, a multi-layer perceptron model, and an LSTM model for performance and interpretability on a multi-label classification task for movie genres based on the Cornell Movie-Dialog corpus
- HB141 App (Swift, 2017)
 - Developed iOS app to aid volunteers at the International Human Trafficking Institute in enforcing House Bill 141, which mandates signage for providing emergency assistance to victims of human trafficking

SCHOLARSHIPS

- | | |
|---------------------------|-----------|
| • Zell Miller Scholarship | 2016–2020 |
| • Hope Scholarship | 2016–2020 |

EXTRACURRICULAR ACTIVITIES

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|---|-----------------------|
| • Atlanta Humane Society
<i>Volunteer</i> | January 2021–May 2021 |
| – Assisted with dog care and adoption visits by cleaning dog kennels and providing attention to skittish dogs | |
| • Georgia Tech Model United Nations
<i>TechMUN Secretary-General</i> | August 2016–May 2020 |
| – Led Secretariat team to plan TechMUN, collegiate-level Model United Nations conference, for delegates from other schools and within GTMUN to compete in four committees | 2020 |

- Advertised conference and communicated logistics to other university Model United Nations programs
- Trained GTMUN members as staff and delegates for participation in conference by teaching parliamentary procedure and policy writing

TechMUN Under-Secretary-General General Assembly

2018-2019

- Planned collegiate-level General Assembly committees for 40 delegates from both within GTMUN and other schools
- Developed public speaking and diplomacy skills while competing against other delegates in simulations of United Nations committees

- **Georgia Tech Marching Band**

August 2016–May 2020

Tenor Saxophone

- Promote school spirit at football, basketball, and volleyball games by performing on tenor saxophone at halftime and throughout games

- **IEEE Robotics Team**

August 2018–March 2020

Vision and Playing Field Team Lead

2019-2020

- Implemented computer vision and classification libraries to enable team robot to complete task for IEEE Southeast Con competition
- Led team of mechanical engineers and computer scientists to construct robot playing field to IEEE specifications for robot testing

- **The Makery**

January 2017–December 2019

Vice President

- Taught hardware basics to computer science majors to instill an excitement for working with firmware and hardware components
- Planned and advertised workshops based on beginner Arduino and Raspberry Pi projects

- **Jumpstart**

January 2017–August 2017

Volunteer

- Visited under-resourced Atlanta preschool to work with young children on literacy and behavioral skills
- Worked with volunteer team to plan and implement early-education lesson plans for twice weekly visits to class of twenty five-year-old children

- **Georgia Tech Oxford Study Abroad Program**

May 2017–August 2017

Participant

- Traveled throughout continental Europe and the United Kingdom studying European art and music