Samuel Moseley

Master of Engineering, Computer Science
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Citizenships: *US, Swiss, Irish (EU), Israeli*
Languages: *English (fluent), French (working), German (basic)*
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Experience

Machine Learning Engineer, Omelas (Ithaca/New York, NY) *Feb 2018 – Present*

Consulting engineer for Omelas, an analytics services provider for private and public organizations. Developing computer vision models to do sentiment classification. Helping pioneer new computer vision algorithms that improve the systems' interpretability and robustness, important metrics to Omelas' clients.

Software Engineer Intern, BlackRock (New York, NY) *May 2018 – Aug 2018*

Software Engineer Intern in the Aladdin Product Group. Working with the Core Software Infrastructure team to develop the Aladdin Data Layer and the Aladdin Search Layer, both core technologies to the integrated Aladdin platform. Aiding in research and development of new technical solutions across engineering teams. Participating in financial product and technology innovation challenges. Collaborated across business departments to design a new investment tool. The design and prototype of the new tool won a finalist award in a company-wide intern hack-a-thon.

Database Researcher, Database Group, Cornell University (Ithaca, NY) *Feb 2017 – Present*

Creating a new database (DB) system that leverages a novel query optimization algorithm in collaboration with the Cornell Database Group. The system aims to reduce the frequency of common unreliable query processing times due to inaccurate assumptions about predicates. The algorithm uses reinforcement learning as well as game theory. Wrote the query processing engine, SQL parser, and execution engine. Tested the system with published benchmarks showing demonstrably better performance and robustness than leading main-memory and disk-based DBs. Co-authored a paper that was accepted for demo and peer-reviewed publication at the VLDB 2018 conference (Rio de Janeiro, Brazil). Won an NSF scholarship to support conference travel. Co-authoring additional papers for SIGMOD 2019 (Amsterdam, Netherlands) and VLDB 2019 (Los Angeles, CA, United States).

Vision Team Lead, CUAir (Ithaca, NY) *Sep 2014 – Jun 2018*

CUAir, a Cornell University College of Engineering project team, designs, builds, and flies an autonomous airplane that competes in AUVSI, an autonomous vehicle competition held annually in Maryland. The team has several sub-teams, including Vision. Vision's goal is to create an automatic target detection, localization, and classification system. Used advanced machine learning and computer vision algorithms to build a target detection and classification system. Wrote algorithms in Python using Tensorflow, Keras, Caffe, OpenCV, and SciKit. Pioneered a new front-end web-application and back-end server to make configuring and monitoring the image processing system possible. The front-end and back-end application were built using Flask, SocketIO, React, and Redux. Improved system usability and configurability to streamline setup and mission workflow. Added additional development cycle testing to improve system reliability. Implemented and integrated cutting-edge machine learning algorithms inspired by research in the past 18 months. The team achieved a ~20% increase in recall rates and experienced no system failures at test flights or competition. As Vision Lead, recruited new members, coordinated projects between sub-teams, and coordinated the resources necessary for the team to succeed.

Head Teaching Assistant, Cornell University (Ithaca, NY) *Aug 2017 – Present*

Teaching Assistant (TA) for *Machine Learning and Intelligent Systems* (CS 4780), *Introduction to Database Systems* (CS 4320), and *Database Practicum* (CS 4321).

Software Engineer Intern, LendUp (San Francisco, CA) *Jun 2017 – Aug 2017*

Designed, implemented, and launched an event stream platform. The event stream was designed to handle incoming customer data from website, email, and phone tracking. Helped bring Apache Kafka onboard and integrated Kafka into the event stream platform. Coordinated with business analysts and engineers when designing the event stream and data pipelines. The product made novel business analysis possible and improved incoming data throughput by 30%. Presented the event stream to senior architecture committee. Also, as part of a hack-a-thon team, developed a concept for a new customer service product. The customer service product leveraged machine learning to make a more seamless customer service experience. Presented the concept application to the Board of Directors to showcase promising new innovation.

Innovation Lab Intern, KPMG (New York, NY) *Jun 2015 – Aug 2015*

Worked on research and presentations for major corporations. Research was largely focused on advising corporations on millennial trends and where innovation could be valuable.

IBM, Research Intern (Yorktown Height, NY) *Jun 2012 – Aug 2014*

Worked on superconductor computer chip design. Designed chips to test kinetic inductance of new materials that were being considered to replace conventional inductors in superconductor processors. This was done in conjunction with a science research class.

Education

Cornell University, College of Engineering (Ithaca, NY)

Master of Engineering, Computer Science *Jan 2018 – Dec 2018*

Bachelor of Science, Computer Science *Aug 2014 – May 2018*

Dean's List 2018

Computer Science courses: system architecture • data structures • functional programming • compilers • database systems (undergraduate and graduate courses) • machine learning (undergraduate and graduate courses) • distributed computing • natural language processing

Mathematics: chaos and dynamics • calculus • linear algebra • discrete structures

Management: women in leadership • financial statement analysis • leadership principles • engineering communications

Max Planck Institute for Informatic (Saarbrücken, Germany)

Pre-Graduate Summer School, Emerging Trends in Computer Science *Aug 2018*

Selected for an international pre-graduate, expenses-paid summer school at the Max Planck Institute in Saarbrücken, Germany. The program is a collaboration between Cornell University, University of Maryland, and the Max Planck Institute. The 2018 edition focusses on emerging trends in computer science with topics such as machine learning, security and privacy, natural language processing, and computational economics. The program includes lectures, projects, and interaction with faculty and researchers from the participating institutions.

Team Involvement

Cornell Cycling Club *Sep 2014 – Present*

Treasurer *Aug 2015 – May 2016*

President *Aug 2016 – May 2018*

Organized training rides and camps, social events, and racing trips. Acquired over $30k in sponsorship for the team. Acquired equipment sponsorship for and introduced a new loaner bike program to encourage women's cycling. Twice attended Division I Nationals, on both occasions placing top-15 out of 150 cyclists.

Foundation Cycling Team *Jan 2014 – Apr 2017*

Raced as a member of a multi-national team in professional races across the US, Canada, Belgium, Ecuador, Trinidad and Tobago, and the Dominican Republic. Won the 107-mile Elite New York State Road Cycling Championship in 2014.