Samuel A. Mercier

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Education

Purdue University (College of Science, Honors College) | **West Lafayette, IN**

B.S. in Mathematics Honors, Minor: Computer Science, Philosophy | *May 2020*

Thesis: An Introduction to Homotopy Colimits in Model Categories | *Forthcoming*

Awards: Purdue Presidential Scholarship, Purdue Marquis Scholarship | *Fall 2015–Spring 2020*

Senior Achievement Award (Dept. of Mathematics) | *Spring 2020*

Eugene V. Schenkman Award for the best Algebra student in the Dept. of Mathematics | *Spring 2020*

Thomas Arai Scholarship | *Spring 2019*

Mitch Daniels Early Graduate Scholarship | *Fall 2015*

Honors: Dean's List | *6 of 7 semesters*

The Outstanding Senior in Mathematics | *Spring 2019*

Experience

Work Experience – Software Engineering

Software Engineer Intern NASA JPL (Pasadena) – Modeling & Verification | *May 2020–July 2020 (Expected)*

I will be working on a project called "Next-Generation Modeling and Simulation Software" in Java this summer. This project supports the Mars 2020 and Europa missions.

Software Engineer Intern Affirm (San Francisco) – Risk Engineering Team | *September 2019–November 2019*

Expanded the functionality of the underwriting microservice. Made loan decision tasks asynchronous. Expanded integration testing of loan decisioning. *Technologies:* Python, SQL, Shell scripting, & Docker.

Software Engineer Intern MongoDB (New York) – Query Team | *May 2018–August 2018 & May 2019–August 2019*

Implemented a new index type which can index all fields of all documents in a given collection. Sped up $lookup queries by 28x according to performance tests. Recovered technical debt by rearchitecting projection execution. *Technologies:* C++, Python (for testing), & JavaScript (for testing).

Software Engineer Intern MongoDB (New York) – Monitoring Team | *May 2017–August 2017*

Researched and implemented time series analysis techniques for anomaly detection for their "DaaS" platform. Integrated into existing alerts framework to create automated anomaly detection alerts. *Technologies:* Java & MongoDB.

Web Development Intern in Support of NASA Systems Engineering NASA JSC | *January 2017–May 2017*

Developed requirement management software used throughout NASA. Isolated state, and added routing.

Software Engineer Intern Fullstack Springbuk (Indianapolis) | *June 2016–August 2016*

Led development on an external onboarding application. Improved frontend/backend communication of product.

Work Experience – Teaching

CS 240 Undergraduate Teaching Assistant | *Jan. 2016–May 2016 & Aug. 2016–Dec. 2016 & Jan. 2020–Present*

Assisted in teaching CS 240 *Programming in C* in weekly lab classes & prepared materials (labs, exams, etc.)

MA 161/162 Undergraduate Teaching Assistant | *Aug. 2018–May 2019*

Answered questions posed by students in "flipped classroom" setting for MA 161/162 (*Calculus I/II*).

CS 252 Undergraduate Teaching Assistant | *Jan. 2018–May 2018 & Aug. 2018–May 2019*

Assisted in teaching CS 252 *Systems Programming* in weekly lab classes & prepared materials (labs, exams, etc.)

CS USB Help Room Tutor | *Sept. 2015–Dec. 2015*

Ran a help room for CS 180 *O.O. Programming* & CS 240 *Programming in C* for the Computer Science Dept.

Volunteer Experience

BoilerMake Hackathon Executive Board (Dev & User Experience Team) | *January 2016–October 2018*

Helped plan and organize anything relating to resources/services for the event participants. Made a puzzle webapp.

Purdue FIRST Programs (IT Team) | *August 2015–December 2016*

IT Director | *May 2016–December 2016*

Lead IT work for organization that helps support local robotics teams in high schools and middle schools.