Samuel Mercier

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Education

Purdue University (College of Science, Honors College)   **May 2020**
B.S. in Mathematics with Departmental Honors. Minors: Computer Science, Philosophy.
Bachelors Thesis: An Introduction to Homotopy Colimits   *Advisors: Jeremy K. Miller, Paul VanKoughnett*
Awards & Honors:

o E. V. Schenkman Award (Awarded to the best algebra student in the Dept. of Mathematics)   *Spring 2020*

o Outstanding Senior in Mathematics (Awarded to one senior in the Dept. of Mathematics)   *Spring 2019*

o Merit scholarships covering 97.5% of tuition: *2015–2020*
 Presidential Scholarship (University), Marquis Scholarship (University), T. Arai Scholarship (Math Dept.), M. Daniels Early Graduation Scholarship (Indiana Gov.)

o Dean's List   *2015–2020*   o Senior Achievement Award (Math Dept.) *Spring 2020*

Experience

Work Experience – Software Engineering...

Software Engineer 2 MongoDB (New York) – Query Optimization Team   *Aug. 2020–Present*

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

Developed "Next-Generation Modeling and Simulation Software" in Java in support of JPL engineering missions (e.g. Europa Clipper).

Software Engineer Intern Affirm (San Francisco, CA) – Risk Engineering Team   *Sept. 2019–Nov. 2019*

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

Software Engineer Intern MongoDB (New York) – Query Team   *May 2018–Aug. 2018 & May 2019–Aug. 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–Aug. 2017*

Researched and implemented time series analysis techniques for anomaly detection for their "DaaS" platform. Created automated anomaly detection alerts. *Technologies:* Java & MongoDB.

Web Dev. Intern for NASA Systems Engineering NASA JSC (Houston, TX)   *Jan. 2017–May 2017*

Developed requirement management software used throughout NASA. Added routing. Isolated state.

Software Engineer Intern (Fullstack) Springbuk (Indianapolis, IN)   *June 2016–Aug. 2016*

Led development on a client onboarding application.

Work Experience – Teaching..

Undergraduate Teaching Assistant Purdue University   *2015-2020*

Prepared course materials (labs, homework, exams, etc.) and taught the following courses:

o CS 240 (Programming in C)   *Spring 2020* o CS 252 (Systems Programming)   *Spring 2019*

o MA 162 (Analytic Geom. and Calculus II) *Spring 2019* o CS 252 (Systems Programming)   *Fall 2018*

o MA 161 (Analytic Geom. and Calculus I)   *Fall 2018* o CS 252 (Systems Programming)   *Spring 2018*

o CS 240 (Programming in C)   *Fall 2016* o CS 240 (Programming in C)   *Spring 2015*

Computer Science Help Room Tutor Purdue University   *Sept. 2015–Dec. 2015*

Ran a help room for CS 180 (Object Oriented Programming) & CS 240 (Programming in C).

Volunteer Experience...

BoilerMake Hackathon Executive Board (Dev & User Experience Team)   *Jan. 2016–Oct. 2018*

Purdue FIRST Programs (IT Team; IT Director)   *Aug. 2015–Dec. 2016*

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