

Jacob Hage

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Github: [jakehageumich](#)

Education

[University of Michigan - Ann Arbor] [Computer Science & Engineering - B.S.E.]

September 2015 - present

- Cumulative GPA: 3.804
- Plan to graduate in December 2018
- Earned A letter grade in:
 - EECS 281 - Data Structures & Algorithms
 - SI 364 - Database Web Applications
 - STATS 412: Probability & Statistics
 - EECS 398 - Computing for Computer Scientists

Work & Research Experience

[EECS Instructional Staff - University of Michigan] [Ann Arbor, MI]

August 2017 - present

Instructional Aide - EECS 281: Data Structures & Algorithms

- Help hundreds of students with designing, building, and testing course projects
- Plan and lead weekly lab sessions consisting of course material, software tools, code optimization tips, and exam-style questions
- Collaborate daily with other staff members to build course projects consisting of hash tables, heap implementations, shortest algorithms, and NP problems like Traveling Salesperson and 0-1 Knapsack

[Graph Exploration & Mining at Scale Lab] [Ann Arbor, MI]

April 2017 - present

Researcher

- Invented an algorithm to significantly reduce the number of boundary nodes in a k -way graph partitioning
- Used Stanford Network Analysis Platform (SNAP) and Python Machine Learning libraries to identify significant structural properties for predicting node classification, which led to noticeable reductions in cross-community edges for our graph partitioning model
- Developed C++ program to identify boundary nodes and internal nodes in any partitioned network, which is currently being used in several GEMS projects to analyze structural properties of classified nodes

[Lomize Group - University of Michigan] [Ann Arbor, MI]

May 2017 - August 2017

Software Engineer Intern

- Designed and built a database for all PerMM molecules data owned by Lomize Group, using MySQL and PhpMyAdmin
- Created then deployed PerMM Server and Database website, written in PHP code via Smarty PHP template engine, which is accessed daily by research scientists citing Lomize Group worldwide
- Integrated external javascript source code for interactive molecule visualizations on all Lomize Group websites
- PerMM Server and Database website earns Lomize Group a \$8,000 research grant from the National Science Foundation

[Inter-University Consortium for Political & Social Research] [Ann Arbor, MI]

June 2016 - April 2017

Programmer Intern

- Designed and implemented ICPSR Staff Dashboard page using Java JDBC connectors, SQL querying, Spring MVC templating, and javascript [jQuery], which allows ICPSR staff to view the project statuses of depositors by member institutions
- Created ICPSR User Dashboard page, following the release of ICPSR Staff Dashboard page, which is currently used by thousands of ICPSR user members worldwide
- Used working knowledge of d3.js data visualization libraries and ReactJS to build data charts in ICPSR Study Utilization page, a feature of the then-new ICPSR Research Depositor web system
- Created Project Reporting Tool for ICPSR staff to view metadata of published projects within the last three years in order to allow mappings to the former web system

Technical

- Software knowledge:
 - C++
 - Java
 - Python
 - SQL
 - Javascript
 - PHP
 - Hadoop
 - ReactJS
 - Spark
 - SNAP
 - C
 - ReactJS
 - Linux
- Github - A graph partitioning algorithm designed to minimize the number of boundary nodes in undirected networks
- Github - An efficient 0-1 Knapsack Problem implementation that finds an optimal solution for 20,000+ inputs

Additional

- Formerly a two-time Michigan Division 1 all-state pole vaulter in high school
- Avid enthusiast of live music, craft beers, and Game of Thrones