

Justin T. Hutchins

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Education

University of Michigan

L.S.A. Computer Science, B.S., Honors Program

Current G.P.A.: 3.5 / 4.0

Awards: University Honors W18, W19

August 2018 - May 2022

Ann Arbor, MI

Experience

Learning A-Z

Software Engineer Intern

May 2020 - August 2020

Ann Arbor, MI

- Implemented a user-facing search feature using object-oriented PHP patterns, AngularJS components, complex MySQL statements, Solr full-text search indexing, and git for version control.
- Communicated frequently with a mentor and the engineering team to learn the existing product codebase. Participated in multiple code reviews to develop clean coding practices and follow existing standards.
- Researched web application stacks and presented findings in a live demonstration that outlined how to stand up the LAMP stack on a Digital Ocean server using git and GitHub for development and deployment. Also gave monthly status meeting presentations and attended company tech talks.

Projects

Library System

June 2020

- Built a full-stack library system with user accounts, book management, and search functionality.
- Used object-oriented PHP for APIs and interfaces, MySQL to store user and book information, AngularJS to display books and fetch data dynamically, HTML for static elements, and CSS for styling.
- Relied on internal APIs for searching and managing the library database and utilized an external public API for getting book information when adding new books.

Pipeline Processor Simulator

April 2020

- Simulated a six stage, eight register pipeline processor with an instruction and data cache that runs 32-bit assembly instructions based on the ARMv8 assembly language.
- Used data forwarding to resolve data hazards and speculate and squash to resolve control hazards, with methods such as predicting always taken, always not taken, forward not taken and backwards taken, a one bit global predictor, and a two bit global predictor. Returned the optimal branch prediction method that minimized the number of cycles per instruction of the program.
- Determined the optimal block size, number of blocks per set, and set-associativity for both the instruction cache and data cache to maximize their respective hit rates during the lifetime of the program.

Extracurricular Activities

Michigan Hackers at the University of Michigan

Security Team Lead

April 2020 - Current

- Worked together with the executive board and ~20 other team leads to prepare the club for a remote semester by planning virtual events.
- Developed security challenges for Capture the Flag competitions that introduce computer security concepts to new members. Provided resources and experience with industry tools such as Git and Linux.

Core Team Member

January 2020 - April 2020

- Joined the Security Team, working with 15+ other members to learn about MySQL injections, Cross-site scripting, and Linux tools.
- Worked with the Interviewing Director to gain practical interviewing experience, as well as insight into the application and interviewing processes of large tech companies.

Skills

Proficient: C++/C, PHP

Familiar: AngularJS, Javascript, MySQL, Python, Git, Linux