James Zhang

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EDUCATION

University of Wisconsin-Madison — Madison, WI
B.S. in Computer Science and Mechanical Engineering (GPA: 3.6) — *Expected May 2023*

SKILLS

Technologies: Python, JavaScript, React, Node.js, Java, C, Amplify, DynomoDB, HTML/CSS, Git
Other Software: SolidWorks (CSWP Certified Professional), AutoCAD, Siemens NX, Star CCM+, MATLAB

EXPERIENCE

Imhotech — June 2021 – Present
Part-Time Software Developer — *Madison, WI*
- Developing a full-stack Electronic Health Record (EHR) web application on a team of 4
- Designing responsive and accessible front-end UI with reusable components in React and JavaScript
- Structuring back-end with AWS Amplify and DynomoDB
- Collaborating with healthcare professionals to understand market requirements and implementing suggestions

Penda — May 2021 – Aug 2021
Design Engineering Intern — *Portage, WI*
- Automated monotonous task to quickly locate and move testing specifications using Python
- Enhanced workflow by building an app to convert and edit engineering drawings, decreasing workload by 8 hours per week
- Designed the manufacturing fixture for a $2 Million OEM project with an intended production rate of 200,000 cycles per year

Andis — Jan 2021 – May 2021
Product Engineering Co-op — *Racine, WI*
- Created more than 50 detailed engineering drawings of product parts for manufacturability and ease of assembly
- Designed new yoke geometry to minimize interference and reduced noise generated by 25%
- Implemented design and Bill of Material (BOM) changes to in-production and future products using SolidWorks and AutoCAD through Engineering Change Orders (ECO)

PROJECTS

Memory Allocator | [GitHub](#) | *C* — Aug 2021
- Implemented a Memory Allocator in C from scratch that can initialize, allocate, and free blocks of memory of any data type on the heap
- Utilized an implicit free list structure with a first-fit policy to facilitate fast allocation and de-allocation operations

Badger Occupancy | [GitHub](#) | *Python, BeautifulSoup, cron* — May 2021
- Built a web-scraper to observe the occupancy of the Nick Rec Center and output the data to a CSV file for analysis to determine the best time for a work out
- Automated the script to run continuously in 15-min intervals using cron on a Linux Ubuntu machine

Maze Solver | [GitHub](#) | *Java* — Aug 2020
- Explored the efficiencies of multiple search algorithms by solving a randomly generated maze
- Implemented BFS, DFS, A* search algorithm to traverse the cells to find the solution

RESEARCH

Simulation Based Engineering Lab (SBEL) — Jan 2021 – Present
Undergraduate Researcher — *Madison, WI*
- Developing ProjectChrono, an open-source, simulation-based physics engine, using C++ and Python
- Redesigned and launched lab website using WordPress, increasing traffic by 30%

Computational Design & Manufacturing Lab — Sep 2020 – Jan 2021
Undergraduate Researcher — *Madison, WI*
- Applied Topological Optimization(TO) to generate heat sink designs that achieve the lowest average temperature and pressure drop for water-cooling, outperforming traditional designs by more than 40%