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Ashton E. Thomas

Education

University of Michigan - Rackham Graduate School 01/2025 – 05/2026
Major - MSE Computer Science *Ann Arbor, MI, USA*

University of Michigan College of Engineering 08/2022 – 05/2025
Major - BSE Computer Science, GPA - 3.81 / 4.0 *Ann Arbor, MI, USA*
Relevant coursework: Data Structures & Algorithms, Web Development, Computer Vision, Cryptography, Web Systems, Data Analytics, Quantum Computing, Computer Organization

Experience

Amazon 09/2024 – Present
Software Development Engineer *Boston, MA, USA*
- Partnered with a team of more than 20 engineers to design, test, and optimize Alexa devices, enhancing functionality and elevating user experience.
- Independently developed and implemented new features for Alexa devices, optimizing performance and user experience with the use of React Native, Kotlin, TypeScript, and related technologies.

Ground Vehicle Systems Center (SEC) 05/2024 – 08/2024
Software Engineer *Warren, MI, USA*
- Leveraged MagicDraw & Excel to design databases for Jira tickets and hardware, leading to improved efficiency.
- Created Python scripts to parse large csvs with 1000s of datapoints to update integrated networks in Jira.

Madi Taylor Photo 06/2021 – 07/2024
Full Stack Developer *Traverse City, MI, USA*
- Developed and maintained the corporate website, crafting a cohesive user interface with HTML, CSS, and JS.
- Implemented robust back-end payment solutions and form validation to streamline user transactions.

Research

Polk Lab — *University of Michigan* 09/2024 – Present
Computational Neuroscience Research Assistant *Ann Arbor, MI, USA*
- Collaborated with a PhD student to develop a machine learning model aimed at mimicking neural distinctiveness of the human brain, while also enabling the separation of background noise from spoken language.
- Worked alongside Prof. Thad Polk to develop a script that processes CSV files with 1000s of columns, utilizing wildcard parsing to dynamically filter columns. The script includes a node hierarchy for efficient column interrelation and supports operations such as adding, removing, printing, and row filtration.

Projects

Geoguessr AI, Computer Vision 2023 – 2024
- Designed and implemented a modified ResNet-50 architecture for geographic location identification from images.
- Fine-tuned the model with 61k images, addressing lighting and seasonal challenges whilst achieving ∼90% accuracy.

Google Search Engine, Web Systems 2024
- Engineered a scalable search engine leveraging a segmented inverted index implemented with MapReduce for efficient data processing.
- Integrated tf-idf for text analysis and PageRank for link analysis to improve the relevance of search results produced via a REST API.

Instagram Clone, Web Systems 2024
- Created a server-side dynamic version of Instagram with Flask and SQL relational databases, enabling features like user authentication, content management, and interactions.
- Implemented a client-side dynamic version of Instagram using JavaScript, React, and REST APIs, introducing seamless content updates, infinite scroll, and double-tap to like functionality.

Study Group Coordinator, Quantum Computing 2024
- Designed and developed a Study Group Scheduler with Quantum algorithms leveraging Grover's algorithm for efficient group formation under CNF (Conjunctive Normal Form) constraints.
- Created and implemented Bitflip and Phase Oracles to translate CNF constraints into quantum operations.
- Engineered a quantum counting circuit to estimate the number of feasible solutions for optimal scheduling.

Technical Skills

AJAX, ARM, ARCGIS, C/C++, CSS, Excel, Flask, Git, HTML, Javascript, Jinja, Jira, JSON, Keras, Kotlin, Latex, MagicDraw, Makefile, Matlab, NumPy, Python, PyTorch, Qiskit, React/Native, SQL, Typescript, VSCode