

Batool Mahesri

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Education

University of Michigan

Bachelor of Science in Computer Science

Ann Arbor, MI, USA

May 2025

- **GPA:** 3.69 / 4.0
- **Coursework:** Web Systems, Software Engineering, Data Structures and Algorithms, Game Development, Machine Learning

Work Experience

GMSpazio

Software Development Intern

Rome, Italy (In Person)

May 2024 - July 2024

- Redesigned a .NET / C# based UI module for *Shield Master*, a defense systems evaluation tool, delivering production grade software, resulting in improved UX for clients and a more streamlined workflow for colleagues
- Collaborated with senior engineers to gather requirements, identify design flaws, and incorporated iterative feedback, ensuring alignment with technical specifications and user needs
- Proactively explored multiple solutions and components, and independently implemented, tested, and debugged a more consistent and intuitive UI for production deployment with thorough attention to detail
- Delivered a polished, functional solution which was integrated into the *Shield Master* update released in late 2024, and which was further adopted in UI updates for other GMSpazio software products

Michigan Hillel

Operations Assistant

Ann Arbor, MI, USA (Hybrid)

September 2021 - September 2025

- Managed accounts receivable records and created a system to reconcile information between databases and accounting that re-established a regular internal audit process after roughly a decade, improving processes and consistency of records
- Only student employee permitted to work remotely within and outside the U.S, reflecting ability to work independently

Project Experience

MapReduce Framework – (March - April 2024)

- Designed and implemented a MapReduce framework inspired by Google's original MapReduce paper
- Structured and programmed Manager and Worker components communicating via TCP/UDP sockets with JSON based messaging for task distribution, gathering experience with networking and distributed systems
- Utilized multithreading and OS concurrency tools to handle parallel map and reduce operations with fault tolerance for reliability
- Took ownership of designing system architecture when the team was stuck, providing a clear plan for successful implementation

Scalable Search Engine – (April 2024)

- Built a MapReduce pipeline to create a segmented inverted index from a large set of web crawled documents
- Implemented a distributed architecture with multiple index servers and a search server, featuring API routes and server-side aggregation for low latency, parallel query processing in order to achieve scalability and high performance

Social Media Web App Clone – (January - March 2024)

- Acquired full-stack development experience building an Instagram clone with client-side and server-side rendering
- Designed and implemented a REST API, integrated with a SQLite database, with Python's Flask for the back-end
- Created custom JavaScript React components and HTML / CSS templates for the front-end
- Deployed application on AWS and collaborated in a team of 3 with pair programming, Git workflows, and code reviews

Original Game - Degree Capstone: 'Shadow Lab' – (March - April 2024)

- Collaborated in a team of 4 in a 6-week iterative process to design and build a narrative driven 3D game from ground up
- Gathered and adapted to changing requirements through weekly playtesting sessions, taking initiative to propose and implement design improvements based on player feedback
- Worked within an Agile, testing driven process, coordinating closely with teammates to meet aggressive deadlines

Data Structures and Algorithms - C++ Coursework – (August - December 2023)

- Implemented core data structures including stacks, queues, heaps, hash tables, maps, linked lists, and custom templated containers with a focus on memory efficiency and performance
- Applied algorithms such as BFS, DFS, Prim's MST, Branch & Bound, and heuristics for TSP and Knapsack, emphasizing pattern recognition and adaptability for problem solving

Skills

- Programming Languages: C++, Python, C, C#, SQL, Bash Scripting, JavaScript, TypeScript, HTML, CSS
- Development Tools: ReactJS, .NET, Flask, Git, Docker, AWS, Unity, PyTorch, NumPy, Visual Studio, VS Code
- Languages: English (native), Urdu (native) and Gujarati (intermediate)