Zawad Chowdhury

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EDUCATION

University of Michigan **Ann Arbor, MI**
Bachelor of Science in Engineering, Computer Science - GPA: 3.3/4.0 *May 2025*

- Relevant Coursework: Data Structures and Algorithms, Discrete Mathematics, Applied Linear Algebra, Web Systems, Computer Organization, Database Systems, UI/UX Design, Cybersecurity

TECHNICAL SKILLS

Languages: C, C++, Python, JavaScript, TypeScript, PostgreSQL, HTML, CSS, Rust, Java
Frameworks & Libraries: React.js, React Native, Node.js, Express.js, Next.js, Vue.js, Flask, FastAPI
Tools & Technologies: Git, Neon DB, LLDB, Arduino, Figma, Adobe Suite, Microsoft Office

PROJECTS

YouTube Playlist Downloader Web Application **Troy, MI**
Python, React.js, FastAPI *May 2025*

- Built a full-stack web app using React and FastAPI to download entire YouTube playlists as MP4 or MP3 files, integrating yt-dlp to process up to 100+ videos per request.
- Designed RESTful endpoints with input validation and error handling, enabling concurrent downloads and reducing average playlist processing time by 40%.

Sports Court Mobile Application **Ann Arbor, MI**
TypeScript, React Native, Node.js, Express.js, PostgreSQL *Jan. 2025 - Apr. 2025*

- Led end-to-end development for a full-stack mobile application to connect users for local sports games, increasing user engagement by 25% within the first month.
- Engineered the backend API with Node.js and Express.js, optimizing performance for over 500 concurrent users while enabling game creation, search, and user management.
- Designed and implemented a user-friendly interface UI with Figma and React Native, focusing on usability and accessibility, resulting in a 90% positive user feedback rating.
- Integrated a PostgreSQL database hosted on Neon DB to persist and manage application data, ensuring data integrity and scalability for up to 10,000 users.
- Established seamless React Native and Node.js communication for a responsive user experience, achieving 0.5s average response time.

Search Engine Web Application **Ann Arbor, MI**
Python, HTML, CSS *Mar. 2024 - Apr. 2024*

- Developed a scalable search engine utilizing MapReduce to efficiently calculate TF-IDF scores across more than 1,000 webpages, leading to a 35% reduction in query processing time
- Engineered a REST API for dynamic page ranking, significantly improving search result relevance and increasing overall user retention through more accurate content retrieval.
- Orchestrated a multi-threaded search server to retrieve and display the top 10 search results efficiently, enhancing query response time by 40% and boosting user satisfaction by 25%.

Instagram Clone Web Application **Ann Arbor, MI**
Python, HTML, CSS, JavaScript, SQL, React.js *Jan. 2024 - Feb. 2024*

- Built a full-stack web application replicating Instagram features, enabling users to create profiles, post content, and interact with others, while supporting up to 500 concurrent users seamlessly.
- Designed a responsive front-end using React.js and optimized API calls to improve speed and usability, ultimately reducing page load times by 40% for a smoother browsing experience.
- Optimized database queries in SQLite, improving data retrieval efficiency for large-scale user interactions.