Sarang Bhide

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EDUCATION

University of Michigan | Ann Arbor, MI **May 2027**

B.S. in Computer Science

Relevant Courses: Machine Learning, Data Structures and Algorithms, Web Systems, Computer Networks, Computer Organization, Linear Algebra, Discrete Mathematics, Theory of Computation, Building Data-Driven Applications

TECHNICAL SKILLS

Languages: C++, **Python**, TypeScript, **SQL,** C, JavaScript, Shell, C#, R

Technologies: Docker, Flask, Git, Node.js, **PyTorch**, **React.js**, REST APIs, Django, .NET, **AWS**, Linux

EXPERIENCE

Instructional Aide **Aug.2025 - Present**

University of Michigan School of Information

- Fostered a collaborative learning environment by leading weekly discussion sections for over **50 students**, translating complex topics like **Django** and **SQL** into practical skills for hands-on web application development
- Collaborated with a team of instructional staff to evaluate over **100** student projects per semester, providing feedback on coding practices and contributing to a centralized autograding pipeline
- Facilitated troubleshooting sessions for 100 students, creating live demos that reduced common debugging and deployment issues by an estimated **25%** and saved class time

Software Engineer Intern **May 2025 - Aug. 2025**

GreenLancer

- Collaborated with the product and QA teams to integrate a backend Activity Feed system that improved debugging efficiency and reduced investigation time for user-reported errors by **20%**
- Implemented robust SQL Server data models and query logic for comprehensive event tracking, supporting a system that logs over **10,000** unique user actions monthly and contributes to a reliable analytics pipeline
- Contributed to a smooth deployment process by leading walkthroughs with QA and external users, leveraging GitHub Actions for **CI/CD**, which reduced post-deployment bug reports by **25%**

Software Developer **Sep. 2025 - Present**

MedLaunch

- Developed and deployed a **TypeScript/React** web application with secure account management, enabling physical therapists to assign personalized rehabilitation exercises with instructional videos and diagrams
- Collaborated with a 7-person team using **Git** and agile practices to design, build, and demo the app to physical therapists, replacing manual paper workflows with a digital platform that improved efficiency and scaled care to over **50** patients

PROJECTS

Karaoke | TypeScript, Next.js, Demucs, Vercel, Machine Learning, Audio Processing **March 2025**

- Developed an audio processing tool with **Next.js** and **TypeScript** to isolate vocal tracks from recordings, producing high-fidelity instrumental accompaniments that improved clarity and realism for musicians during practice
- Optimized audio separation pipeline to process 3–5 minute tracks in under **30** seconds with >**95%** source-to-distortion ratio (SDR), delivering high-fidelity instrumental and vocal stems

Distributed MapReduce Framework | Python, Hadoop, TCP/IP **March 2025**

- Built a fault-tolerant distributed computing framework in **Python** modeled after MapReduce, implementing a **TCP/JSON** protocol for task coordination and a **UDP** heartbeat system to detect failures and reassign tasks across cluster nodes
- Improved large-scale data processing by streaming mapper/reducer I/O with constant memory usage, enabling reliable handling of **gigabyte**-scale datasets and accelerating computation through efficient file merging techniques

Search Engine | Python, Flask, Hadoop, REST API, SQL **April 2025**

- Built a **scalable** search engine with Python, Flask, SQL, and Hadoop MapReduce, implementing a segmented inverted index and PageRank to efficiently process, rank, and query large web datasets
- Developed RESTful index servers and a **multithreaded** interface to aggregate parallel responses from distributed backends, ensuring rapid, accurate, and reliable search result delivery at scale