Sarang Bhide

U.S. Citizen | 248-989-9030 | ssbhide@umich.edu | linkedin.com/in/sarangbhide | github.com/ssbhide | ssbhide.github.io

EDUCATION

University of Michigan   Ann Arbor, MI
Bachelor of Science in Computer Science, GPA: 3.7   *Aug 2023 – May 2027*
- **Relevant Coursework**: Data Structures & Algorithms, Machine Learning, Operating Systems, Web Systems, Databases, Computer Networks, Theory of Computation, Computer Organization, Distributed Systems
- **Activities**: MedLaunch, University Campus Orchestra, IM Volleyball and Basketball

TECHNICAL SKILLS

Languages: C++, Python, TypeScript, JavaScript, C#, SQL, C, Shell
Frameworks & Tools: Flask, React, Hadoop, PyTorch, PostgreSQL, Docker, AWS, GitHub Actions

EXPERIENCE

Instructional Aide — SI 357/664   Aug 2025 – Present
University of Michigan   *Ann Arbor, MI*
- Led weekly discussion labs for 50+ students and designed interactive exercises in Python and Django that boosted assignment pass rates, reduced debugging questions by 25%, and strengthened backend development understanding
- Developed and maintained autograding scripts and a shared CI testing pipeline to evaluate 100+ student projects per semester, improving grading efficiency and ensuring consistent results across environments
- Delivered deployment and debugging demos that increased lab completion rate by 50%, illustrating real-world workflows for deploying and troubleshooting backend services
- Standardized assignment templates, rubrics, and onboarding materials for students and staff, accelerating IA onboarding, improving grading consistency, and reducing setup ambiguity across lab sections

Software Engineer Intern   May 2025 – Aug 2025
GreenLancer   *Detroit, MI*
- Developed and deployed a full-stack Activity Feed service in C#/.NET with Azure, logging 10K+ user events/month and improving cross-workflow visibility while reducing mean time-to-investigate issues by 20%
- Designed and optimized Microsoft SQL Server data models and reporting queries, cutting report generation time by 40% and enhancing consistency and uptime for internal analytics dashboards
- Implemented GitHub Actions CI/CD workflows and staged rollouts, enabling automated testing, safer deployments, and a 25% reduction in post-deployment bug reports
- Enhanced production observability by integrating structured logging, metrics, and automated health checks using Azure services, reducing average incident triage time by over 30%

PROJECTS

Deep Learning Image Classifier — *Python, PyTorch, Deep Learning*   Oct 2025
- Implemented and trained convolutional neural networks (CNNs) in PyTorch to classify dog breeds, achieving high AUROC accuracy through early stopping, hyperparameter tuning, and transfer learning on augmented datasets
- Built a complete Vision Transformer (ViT) from scratch in PyTorch, engineering the full architecture with patch embeddings, transformer encoder blocks, and multi-head self-attention layers for efficient image feature extraction

Adaptive Video Streaming CDN — *C++, Networking, Systems*   Sep 2025
- Engineered a high-performance C++ HTTP proxy using select-based polling for non-blocking I/O, enabling thousands of concurrent TCP connections and seamless adaptive video playback with minimal latency
- Implemented a dynamic adaptive bitrate algorithm that computes client throughput via EWMA and rewrites HTTP requests in real time, optimizing network utilization and improving average video quality under load

Distributed MapReduce Framework — *Python, Hadoop, Socket Programming*   Mar 2025
- Architected a scalable MapReduce framework in Python inspired by Google's design, distributing large-scale data processing tasks across worker nodes using TCP sockets, threads, and shared intermediate storage
- Developed a fault-tolerant Manager node that tracks Worker heartbeats via UDP, detects failures, and automatically reassigns incomplete map/reduce jobs to ensure reliability and completion under node crashes