MANU HEGDE

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EDUCATION

Master of Science (MS) in Computer Science & Software Engineering   GPA: 3.6/4
University of Washington | Bothell, WA   06/2025
Coursework: Parallel Programming, High Performance Computing, Software Architecture, Research Methods in Software

Bachelor of Engineering (BE) in Computer Science & Engineering   GPA: 3.5/4
Dr. Ambedkar Institute of Technology, Visvesvaraya Technological University | Bengaluru, India   06/2019

WORK EXPERIENCE

Graduate Research Assistant, University of Washington, Bothell, WA   **11/2023 - 12/2024**
- Set up CI/CD using Github Actions and lightweight kubernetes cluster(K3s), reducing deployment time upto 91.6%
- Set up monitoring with Prometheus & Grafana to enable real-time monitoring and alerts
- Optimized runtime performance of python backend (django) services by 29% (saving 600ms+ per request)
- Effectively leveraged API caching (memcached) & UI datastore (Redux), improving end-to-end performance by 27%
- Managed and maintained Linux server, AWS cloud infra, enabling zero-downtime & troublefree work for the research group

Software Engineer Intern, Vaccine Genie, Seattle, WA   **07/2024 - 08/2024**
Vaccine Genie is a Seattle based startup focused on translating and digitizing immunization records for travelers
- Built and beta released OCR (Optical Character Recognition) and Translation capabilities in the Vaccine Genie mobile app
- Implemented and tested the Chinese to English OCR and translation workflow

Senior Software Engineer - L3, Tekion Corp India, Bengaluru, India   **01/2023 - 07/2023**
Tekion is a California based automotive software company funded by former Tesla CIO
- Developed backend services for Peer-to-Peer real-time collaboration feature for e-signing platform
- Built features to enable a configurable & guided signing process for multidocument multiparticipant digital contracts
- Refactored 2 existing services, yielding **18% improvement** in API response time.

Product Engineer, Udaan (Hiveloop Technology Pvt. Ltd.), Bengaluru, India,   **07/2019 - 12/2023**
Udaan is a top B2B e-commerce platforms in India serving millions of retailers, funded by Lightspeed partners
- Initiated & led data platform project to enable self-serve near real-time data workflows for all stakeholders (tech & business); handles **petabyte-scale data** regularly
- Worked fullstack, building & scaling micro-services and infrastructure for front-end, middle-ware & back-end modules
- Managed and maintained catalog using hive metastore and worked on data lineage and governance
- Improved scalability & fault-tolerance, **reducing** outages by 63% and total **cost by 54%**
- Developed query execution & orchestration engine, reducing platform total cost by 19% and sub-proportional cost growth
- Architected DAG (Directed Acyclic Graph) based execution to reliably enforce data dependency & integrity
- Increased resource efficiency by 2.5x by re-architecting critical microservices & databases to efficiently leverage caching, pooling and event driven architecture
- Co-architected MLOps Platform (Feature Store, ML Model CI/CD) to enable additional use cases

AWARDS AND ACCOMPLISHMENTS
- Received **#crushing_it** award at Udaan, for leading and building data platform, which was rated 8.1/10 by 2400+ users
- Awarded and extended Research Assistantship for **five consecutive quarters** for consistently exceeding expectations
- Winner of Hasgeek Deephack 2023 Hackathon in developer tools category (project osh; getosh.com)

TECHNICAL SKILLS
Languages: Python, Kotlin, Java, C++, Rust, JavaScript, TypeScript; HTML, CSS, Shell Scripting (Bash, Zsh), SQL
Frameworks: ReactJS, React Native, Redux, Springboot, JUnit5, Locust, Mockito, Django, Flask, PyTorch, llama.cpp
Technologies: Kubernetes, Jenkins, Github Actions, Git, Docker, Linux, Apache Spark, Elasticsearch, Redis, EventHub, Kafka, Prometheus, PostgreSQL, AWS Lambda, Microsoft SQL Server, MongoDB, Google Cloud Firebase, Azure KeyVault, Terraform

PROJECTS
- **Project TLDR** (capstone project): Implementing on-device LLM based RAG (Retrieval Augmented Generation) by leveraging GPU and NPU (Neural Processing Unit) on Apple M1 and newer architectures.
- **FarmTV** - Created a react native app for farmers of India to watch scientific agricultural videos. Has 50,000+ downloads and 1000+ daily active users; https://shramajeevi.com#farmTV
- **Radiant Board** - Developed firmware (embedded C) and desktop application (C++.Net) for an Information Display Board powered by ATmega1280 controller, used by 2000+ stores of BPCL across India
- **manuOS** (hobby project) - Developed a basic X86 Kernel written in C and x86 assembly, that can handle basic interrupts; https://sourceforge.net/projects/manuos/; github.com/manuhg/manuOS
- **osh** - command line application to debug and fix errors using LLMs - winner of Hasgeek Deephack 2023; getosh.com
- **GPT4 BPE** (class project): Implemented Byte Pair Encoding used by GPT4 in CUDA C++
- **Distributed PageRank** (class project) - algorithm implementation in Spark and MPI
- **fsort** (class project) - Built desktop application with QT C++ for content-based image segregation using Inception V3 CNN & T-SNE clustering, using Caffe2 C++; github.com/manuhg/fsort