

# MANU HEGDE

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CS graduate student with 4 years of full stack software engineering experience building, maintaining and scaling performant, cost-efficient, distributed databases and web applications (powered by REST API based micro-services)

## 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, Natural Language Processing

**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
- Refactored code to optimize 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 OCR (Optical Character Recognition - Computer Vision) & 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 founded by former Tesla CIO*

- Developed micro-services for Peer-to-Peer real-time collaboration features for e-signing platform, helping accelerate adoption
- 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 - 12/2022

*Udaan is a top B2B e-commerce platform in India serving millions of retailers, backed by Lightspeed ventures*

- 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
- Built capabilities for Data masking, Data lineage & RBAC (role based access control) and integrate with ML workflows
- 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
- Overall Impact: Improved efficiency for existing use cases by 2-22x, enabled 100s of new use cases & for 40% less cost

## 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++, C++.NET, Rust, TypeScript; HTML, CSS, Shell Scripting (Bash, Zsh), SQL

**Frameworks:** .NET, 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, MySQL, Cassandra, Terraform, KeyVault

**Paradigms:** Test driven development, Object oriented design, Continuous Integration & Continuous Delivery (CI/CD), Agile Development, Generative AI, Cross cloud platform development, Multi layer caching using relational databases & key value stores

## 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](https://github.com/manuhg/manuOS)
- osh** - command line application to debug and fix errors using LLMs - winner of Hasgeek Deephack 2023; [getosh.com](https://getosh.com)
- Distributed PageRank** (class project) - algorithm implementation in Spark and MPI