VAIBHAV UPRETI

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Education

Maharaja Agrasen Institute Of Technology	**Nov 2021 - June 2025**
Bachelor of Technology in Computer Science with specialization in AI and ML; CGPA: 9.052	*New Delhi, India*
Amity International School	**Nov 2019 - May 2021**
Intermediate CBSE Board; Percentage: 90.2	*Delhi, India*

Technical Skills

Languages: C++, Python, Java, Ruby, C, Bash, SQL, JavaScript
Tools: NodeJS, Docker, Kubernetes, Build Tools(rake), CI/CD, Terraform, MRSK, Prometheus, Opentelemetry, Helm
Frameworks: Rails, Flask, Gatsby, Hugo, Apache Kafka, Apache Spark
Platforms: Git, AWS, Heroku, GCP
Databases: PostgreSQL, MySQL, Redis, Cassandra, MongoDB, Cloud Databases

Experience

CircuitVerse — **Oct 2022 - Present**
Core Team Member — *remote*
- Actively maintaining and regularly reviewing **infrastructure** for CircuitVerse.
- Authored **Helm Charts** and maintained documentation, automation scripts, Terraform configuration, and blog posts for CircuitVerse.org.

Google Summer of Code'23 @CircuitVerse.org — **May 2023 - Sep 2023**
Student Developer — *remote*
- Successfully made the application **12-factor compatible**, significantly improving its efficiency and scalability.
- Efficiently migrated nearly **1 million attachments** of more than **300k users** (e.g., avatars, Circuit images from the server) from deprecated tools to AWS S3.
- Implemented Opentelemetry **distributed tracing** via gRPC and HTTP protocols, enhancing observability, and exported telemetry data to 2 backends - Jaeger and New Relic.
- Introduced **Monit tool for server monitoring** and automatic repairs, ensuring 100% system stability and reduced critical failures.
- Created a **zero downtime deployment pipeline** using GitHub Actions and kamal.
- Dropped visitor tracking by adopting **HyperLogLog** for efficient project view count.

GirlScript Summer of Code — **Feb 2022 - May 2022**
Contributor — *remote*
- Ranked **137** among 2000+ contributors, actively contributed to web projects, specializing in JavaScript, React, and NodeJS, while assisting peers.

Projects

Innate | *Rails, JavaScript, PostgreSQL, Redis, StimulusJS, Docker*
- Built a **multi-tenant** SaaS English Learning Platform with a 3-tier architecture, utilizing Docker volumes for production deployment. Leveraged **Redis and StimulusJS** to enhance user experience and data handling.

MetaSync | *Python, Kafka, Apache Stream, Cassandra, PostgreSQL, MySQL, AWS*
- Engineered a **near-real-time metadata synchronization**, achieving a 95% data ingestion latency reduction for improved reliability and observability.
- Optimized data lake with 4+ metadata store integrations, resulting in a 30% reduction in access times, enhancing security and support.

HandWriting Recognition WebApp | *Machine Learning, Flask, AWS, Helm, Kubernetes, arm64, CI/CD*
- Created a Flask web app, hosted on AWS EC2 and **integrated CNN and RNNs** with the YOLO-based HTR model.
- Trained the HTR model on **34,000 images** with 6.5k unique words, achieving **91.93% accuracy**.
- Crafted a GitHub Actions workflow **to build and push a Docker image to a registry**, along with **Helm charts**.

npx vaibhav-up | *JavaScript, NodeJS, JSON*
- An NPM package that serves as a resume in CLI with **500+ downloads**. Deployed the package and automated the build process using CI/CD.

Extracurricular/Awards

- Mentored participants at **FOSS HACK'23** for CircuitVerse.org.
- Curate and maintain a **private homelab** powered by Mac Mini M2 as a server.