

ANVESH REDDY PINNAPUREDDY

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EXPERIENCE

- **SAP Labs (on Project Gardener, a K8s PaaS)** Bengaluru, India
Software Engineer July 2023 - Present
 - **EtcD Cluster High-Availability:** Architected a critical, quorum-preserving pod update mechanism for `etcd` clusters. Designed & Implemented a controller-driven pod lifecycle management to prevent artificial quorum loss, ensuring high-availability during updates.
 - **CLI Tool (Druidctl):** Developed the `Druidctl` CLI framework (using Go and Cobra) as a `kubect1` plugin. Simplified `etcd-druid` cluster management, reducing manual operational overhead and improving developer productivity.
 - **K8s Disaster Recovery with Backup Compaction:** Boosted the success rate of Kubernetes cluster restoration from 30% to over 95% by engineering a robust backup compaction mechanism, ensuring reliable recovery from system-wide failures.
 - **Multi-Cloud Test Automation:** Designed and implemented end-to-end tests for `etcd-backup-restore` by integrating cloud provider emulators (AWS, GCP, Azure). This significantly reduced infrastructure costs while maintaining comprehensive multi-cloud test coverage.
 - **Helm Deployment & Observability:** Enhanced Helm deployment pipelines for `etcd-druid` with multi-node HA bootstrapping. Integrated comprehensive Prometheus metrics and Grafana dashboards to provide real-time cluster observability, enabling community users to monitor and manage distributed `etcd` deployments at scale.
- **SAMSUNG R&D** Bengaluru, India
Software Engineer Intern May 2022 - July 2022
 - **Log Analysis & Triage Tool:** Engineered a Python-based tool to automate the analysis of communication errors between SIM cards and mobile handsets, significantly speeding up root cause analysis.
 - **Priority-Based Scheduling:** Implemented a priority scheduling algorithm to manage and process log decoding tasks based on file age and custom priority, optimizing system resources.
 - **Scalable Log Parsing:** Designed and built a modular, scalable parser to decode complex hexadecimal error logs, enabling robust and maintainable fault detection.
- **I-Hub Data, CIE, IIIT Hyderabad** Hyderabad, India
Software Developer Intern Mar 2022 - May 2022
 - **JavaScript Canvas Application:** Developed a web-based image annotation tool using JavaScript and HTML5 Canvas, enabling researchers to segment and label regions of interest for ML models.
 - **Medical Image Annotation:** Contributed to a central government project for cancer detection by developing a key data-labeling application for cellular images.
 - **Core Feature Development:** Engineered core usability features for the annotation tool, including dynamic zoom, pan, and undo/redo functionality to improve workflow efficiency.

EDUCATION

- **International Institute of Information Technology (IIIT-H)** Hyderabad, India
Bachelor of Technology in Electronics and Communications Engineering July 2019 - May 2023

PROJECTS

- **Kubernetes Service-Merging Controller:** Built a Go-based Kubernetes controller to dynamically orchestrate service merging-consolidating multiple services into a unified endpoint while maintaining full reversibility and zero downtime.
- **Relational DBMS Implementation:** Engineered a relational DBMS from scratch, featuring a SQL query processor and efficient data retrieval using B+ Tree and Linear Hash indexing.
- **Unix-style Shell (in C):** Developed a shell in C using kernel system calls, implementing process management (fork/exec), I/O redirection, and inter-process pipes.

TECHNICAL SKILLS

- **Languages:** Go, Python, C/C++, SQL, Bash/Shell
- **Technologies:** Kubernetes, Docker, etcd, AWS, GCP, Azure, Prometheus, Grafana, Helm, gRPC, Linux