Medha Kalkur

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Education

Master of Science in Computer Science *August 2022 – May 2024*
University of Utah (GPA: 3.7/4.0) *Salt Lake City, USA*

Bachelor of Engineering in Computer Science *August 2016 – May 2020*
JSS Science and Technology University (CGPA: 9.7/10.0) *Mysore, India*

Technical Skills

Languages :	C, C++, C#, Python, HTML, CSS, PHP, Javascript, Perl
Databases and Tools :	MSSQL, Vertica, LevelDB, PostgreSQL, Git, Docker, Kubernetes, Postman, Qemu, Jenkins
OS and Environments :	Linux, Windows, Visual Studio, Jupyter Notebook
Cloud Services and Frameworks :	Microsoft Azure, .NET, Pandas, NumPy, TensorFlow

Professional Experience

Graduate Research Assistant *January 2023 – May 2023*
University of Utah *Salt Lake City, USA*

- Re-engineered and incorporated a Piecewise Linear Regression Model in Google's LevelDB that **speeds up the compaction process by 35%.**
- Optimized **disk I/O by 21% by implementing multi-threading in C++,** leading to the PLR models loading faster.
- Composed a generic K-Vector merge library(merging k sorted lists to 1) that **operates 26.5 times better** than the standard merge.

Software Engineer II *February 2022 – June 2022*
Microfocus *Bengaluru, India*

- Designed and implemented functionality to capture both **common and non-common Azure web-hook alerts**, processing an average of 5,000 alerts daily and seamlessly transmitted to the OBM UI via REST calls.
- Improved UX by **categorizing REST responses into specific alert events**, enabling customers to visualize performance scales graphically. Obtained a 27% optimization in performance efficiency compared to the previous implementation.
- Resolved a critical showstopper issue related to **Azure VM primary DNS discovery conflict**, resulting in a 100% resolution rate for the issue and improved system stability.
- Enhanced team integration by mentoring 2 new joiners and 2 interns on the product, leading to a faster onboarding process and accelerated project kick-off.

Software Engineer I *August 2020 – January 2022*
Microfocus *Bengaluru, India*

- Streamlined Azure Storage account monitoring by integrating an augmented monitoring framework, leading to a 30% faster migration and successfully adapting existing code to a **REST-based data-collection framework**.
- Built a **Custom Metric Ingestion tool** that converts agent DB tables to Vertica-readable JSON files using Python, reducing manual entry time by 40%.
- Packaged over 10,000 JSON files and deployed them on Kubernetes cluster, improving data transfer speeds to the **Vertica DB via agent metric collector**.
- Introduced VSQL queries that amplified data aggregation efficiency and **ensured 100% timely processing of late entries**.

Software Development Intern *January 2020 – July 2020*
Microfocus *Bengaluru, India*

- Spearheaded the Optic Data-Lake PoC for the **Prometheus Connector**, causing **20% enhanced monitoring capabilities** through tailored schemas and Business Value Dashboard (BVD) creation.
- Created Python scripts using Selenium for **Continuous Hours of Operation testing on WebLogic Application Server**. Simulated 70% of the application load through login, messaging, profile switch, and logout operations.

Projects

Logging and Recovery

- Elevated system resilience by implementing **write-ahead logging (WAL) and check pointing** in a B-epsilon tree key-value store.
- Developed a **recovery logic in C++ to replay changes from logs** and update the checkpoint index, which resulted in a 18% reduction in recovery time after crashes.

Extension of XV6 operating system

- Extended the xv6 kernel by integrating system calls, such as memtop, and introducing POSIX thread support along with **synchronization primitives like spin locks and mutexes** leading to a more stable and efficient multi-threaded environment.
- Developed a functional UNIX shell by introducing **robust I/O redirection and pipe support**, resulting in efficient command parsing and seamless multi-tasking capabilities.