Siddesh Shinde

https://www.linkedin.com/in/sshindesiddesh/ | https://sshindesiddesh.github.io/

85 Rio Robles
San Jose, California
+1(631) 820-5510
sshindesiddesh@gmail.com

Distributed Systems Engineer passionate about solving real-world problems at scale, with expertise in performance optimizations and resilient architectures.

EDUCATION

Masters in Computer Science, Stony Brook University **AUG 2017 - DEC 2018**

- **Coursework :** Operating Systems, Algorithms, Artificial Intelligence, Network Security, Database systems, Distributed Systems **GPA 3.93/4.0**

Bachelors in E&TC, Pune Institute of Computer Technology **AUG 2011 - JUN 2015**

- **Coursework :** Data Structures, Real Time Operating Systems, Computer Architecture, System Programming, Computer Networks **GPA 3.76/4.0**

WORK EXPERIENCE

Cohesity - Staff Software Engineer - Core Datapath MAR 2019 - PRESENT

- Currently contributing to the **Distributed File Systems** team.
- Proposed and shipped several performance optimizations for creates, links, renames, lookups and reverse lookups **(25% to 20x gains)**. **5 US patents filed**.
- Optimized read/write in **Key-Value** and Logical **data replication** services.
- Worked on **Cloud Native Data-Platform** (kubernetes orchestrators, fault tolerance abstraction, data plane unification, etc).
- Root caused **several critical data integrity issues**. Lead a project to detect, fix and prevent corruption issues leading to 70% reduction within 2 quarters.

VMware - Member of Technical Staff, Intern - Cloud Platforms MAY 2018 - AUG 2018

- Developed a proof-of-concept for decentralized lifecycle management of Data Centers using GoLang. Implemented a PoD service in **AWS** from the ground up, leveraging **Kubernetes** for container orchestration and scalability.

Qualcomm - Software Engineer - Boot & Security DEC 2016 - JULY 2017

- Enhanced the kernel bootloader for Snapdragon 700 series by implementing a **secure** boot process with a robust chain of trust. Utilized **cryptographic** algorithms and hardware-backed security features (Secure Boot, TrustZone).

Marvell Technology Group - Software Engineer - IoT R&D JULY 2015 - DEC 2016

- Designed and implemented an SDK for Apple's HAP IoT on a WiFi+BLE product, Secure Tunnel. Developed using networking layer libraries (HTTP, TCP/IP, GATT) on an RTOS with multithreaded support in C.

PROJECTS

Distributed Resource Throttling Service

- Designed and developed system for managing abstract resources (network bandwidth, task execution, etc) with cluster-wide rate limit capabilities.
- Integral to 20+ controlpath and datapath services across the infrastructure.

Instantaneous Large Object Truncation

- Developed and patented an algorithm for efficient truncation of large objects, reducing operation time from linear to logarithmic by dereferencing data blocks from the B+Tree. Truncation is ~10x faster for a 1-100GB file.

Distributed Tracing Service

- Designed an observability platform using OpenTelemetry and implemented a collector service to aggregate traces/logs/metrics. Exporting data to AWS S3 and processing telemetry data with Apache Spark on AWS EMR.

SBUnix - Design and Implementation of 64 bit kernel

- Developed a **preemptive multitasking** kernel by designing scheduler, paging, memory allocator (kernel/user), kernel threads, ring-3 user process, etc.
- Implemented system calls copy-on-write fork, execve, waitpid, kill, etc.
- Developed **Virtual File System** and support for ELF parsing and loading.
- **Shell** that supports executing scripts/binaries/pipesand background processes.

SKILLS

Programming Languages :
C, C++, Python, GoLang
Java, Rust, etc

Distributed Datastores :
MySQL, MongoDB, Zookeeper, Kafka, Redis, DynamoDB, etc

Storage Engines :
RocksDB, SQLite, etc

Backend Technologies :
grpc, protocol buffers, TCP/IP, REST, Kubernetes, Docker Containers, etc

Cloud & Infrastructure :
AWS (EC2, S3, SQS, EMR), HDFS, Apache Spark, Apache Flink, Apache Airflow, Data Built Tool (dbt), etc

Monitoring:
OpenTelemetry, Prometheus, Graffana, etc

US Patents Filed

(Pending Grant)

1. **Instant large objects/files** truncation in a distributed file system. (2022)

2. Algorithm to perform **optimal** distributed file system directory **Reverse Name Lookup**. (2022)

3. Algorithm to perform **intent-less update transactions** in distributed file systems. (2023)

4. Methods for high throughput **sequential/bulk key additions in a B+ tree**. (2023)

5. High throughput distributed **file system journaling using B+ Tree leaf packing**. (2024)

PAPER

RoboChair : Health Monitoring IoT System for Wheelchair, International Journal of Advance Research (IJOAR)