

# Siddesh Shinde

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## EDUCATION

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

- **Teaching Assistant** : Operating Systems by Prof. Erez Zadok.
- **Research** : Member of **File Systems & Storage Laboratory (FSL)**
- **Coursework** : Operating Systems, Algorithms, Artificial Intelligence, Network Security, Database systems, Distributed Systems **GPA 3.93/4**

**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**

## WORK EXPERIENCE

**Cohesity** - Member of Technical Staff - Core Data Path FEB 2019 - PRESENT

- Contributing to the Distributed File Systems team in core data path.
- Designed and developed a new **service for throttling cluster wide resources**.
- Proposed and shipped multiple data/metadata performance optimizations.
- Proposed and designed structured logging and distributed tracing service.

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

- Implemented a proof-of-concept of **Decentralized Lifecycle & Configuration Management** of Software Defined Data Centers (SDDCs) for **Edge Computing** in GoLang.

**Qualcomm** - Software Engineer - Boot & Security JAN 2017 - JULY 2017

- Worked on **Mission ROM**-A framework that allows patching post production buggy ROM code in RAM. Worked on securely loading linux kernel on snapdragon targets.

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

- Designed and Implemented a **SDK for Apple's HomeKit Accessory Protocol** on WiFi + BLE System-On-Chip based product **Secure Tunnel** which was showcased at **Consumer Electronics Show**, (CES 2016).
- Developed drivers and worked on networking layers (HTTP, TCP/IP, GATT, GAP) in C to enable **multithreaded** support for WiFi/BLE on IoT platforms.

## MAJOR PROJECTS

**Distributed Resource Throttling Service**

- Allows creating/destroying abstract resources and setting clusterwide rate limits. Adheres to soft limits with some error margin.
- Used for rate limiting network bandwidth, number of tasks/workers, etc
- Sole designer/contributor. Most of the control/datapath services use it.

**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.
- A **Shell** that supports executing scripts/binaries interactively, launching pipes/background processes and allows file lookup by changing directories.

**Secure Tunnel** - WiFi-BLE Bridge to connect BLE devices to the Cloud

- Designed and implemented device state machine and HTTPS to GATT packet request/response protocol to tunnel upto 32 BLE devices over WiFi.
- Developed a design for **parallel requests, asynchronous events, and real time responses** with limited processing & memory resources (512 KB RAM).
- Developed suspend/resume power save modes and enhanced security with two layer encryption (ChaCha20-Poly1305 & SHA256).
- 'Certified by Apple' as HomeKit SDK. Support for iCloud & AWS.

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## SKILLS

**Programming Languages :**

C, C++, Python, GoLang  
Shell Scripting, HTML, etc

**Distributed Datastores :**

MySQL, MongoDB, Zookeeper,  
Kafka, Redis, etc

**Storage Engines :**

RocksDB, SQLite, etc

**Backend Technologies :**

grpc, protocol buffers, TCP/IP,  
REST, cloud computing, etc

## ACHIEVEMENTS

**4th Rank**, ABU-Robocon, 2014,  
National Robotics Competition

**'Most Popular Project'**,

Intel Embedded Design  
Challenge, 2014

## PAPER

**RoboChair** : Health Monitoring  
Wheelchair, International Journal  
of Advance Research (IJOAR)  
Proposed a system that allows  
user to robustly interact with  
the wheelchair at various levels  
of control and sensing. Devised  
solution for monitoring  
health and security .

## SEMINARS CONDUCTED

Serialization/Deserialization with  
**Protocol Buffers**, Cohesity (2023)

Boosting developer productivity  
with offline **Distributed tracing**  
**tools**, Cohesity (2023)

**Mission ROM** framework for  
Mobile, Qualcomm (2017)

Designing **WiFi-BLE Combo**  
**Systems**, Marvell (2016)

Analysis of **Image Processing**  
Algos on GPU vs CPU,  
Navstik Labs (2014)

## EXTRA CURRICULAR

Head, Robotrix, PICT IET, 2014  
Organizer, Addiction - Cultural  
Festival of P.I.C.T., 2012  
Volunteer, INC - Technical  
Festival of P.I.C.T., 2011