Shubhi Rani

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Education

- **Stony Brook University** — Stony Brook, NY
  Masters in Computer Science; GPA: 3.54 — *Aug 2015 - Dec 2016*
  Courses: Operating Systems, Analysis Of Algorithms, Artificial Intelligence, Machine Learning, Probability and Statistics and Network Security.
- **Birla Institute of Technology** — Mesra, India
  Bachelor of Computer Science; GPA: 3.9 (8.54/10.0 - First in class of 60) — *Aug 2008 - May 2012*

Skills Summary

- **Languages**: Java, C++, Python, C, SQL, Unix scripting
- **Tools**: Kubernetes, Docker, Springboot, GIT, JIRA, Matlab, XCode, Postgres

Experience

- **VMware** — Palo Alto, CA
  Member Of Technical Staff — *Feb 2017 - Current*
  - **Events and Alert Manager**: Network Fabric Controller is a logically centralized software controller to manage a distributed physical network fabric or a physical network underlay. Designed and developed a library which can be used by any services within Network Fabric Controller to generate events and raise alerts for NFC managed objects. The events and alerts are displayed on the NFC dashboard.
  - **Upgrade NFC**: Designed and developed an over-the-air and air-gapped upgrade mechanism that is used to upgrade the single node Network Fabric Controller cluster.
  - **Health Monitoring System**: Designed and developed a monitoring service which is responsible for monitoring the health of all the micro services running inside NFC cluster.
  - **CLI framework**: Developed an internal command line interface tool which provides a set of commands specific to Network Fabric Controller projects to get the system health, logs and current resource utilization. It can be easily extended to perform various other actions.
  - **Bootstrap NFC**: Network Fabric Controller is composed of several micro services deployed on the Kubernetes pods on a single-node cluster. Designed and implemented the bootstrapping mechanism to package all the services and deploy on the Kubernetes environment.
  - **Install/Upgrade/Uninstall NSX agent**: Worked on install, upgrade and uninstall mechanism of NSX agent on workload VMs deployed on NSX cross cloud environment.
  - **AppDiscovery**: Worked on application profiling feature which provides visualization and details of which processes inside a workload VM are communicating on the network.
- **Stony Brook University** — Stony Brook, NY
  Research Assistant - Prof. Erez Zadok — *May 2016 - August 2016*
  - **System Call Trace Record/Replay**: Worked on building a trace replayer at system call level to reproduce system call operations that were captured during a specific workload using C, C++, DataSeries. Developed a wrapper class that makes C++ functions callable by strace C code.
- **Samsung Research Institute** — Noida, India
  Software Developer Engineer — *Jun 2012 - July 2015*
  - **Android File System**:
    - Involved in board bring-up activities for Android Smart phones based on Exynos and Broadcom chipsets on Android version 4.3 Jelly Bean to Android 5.0 Lollipop.
    - Experienced in porting of File System (FAT, EXFAT, SDCARDFS, EXT4) on Samsung mobiles proprietary platform.
    - Enhanced performance of smart phones having low RAM by analyzing performance using blktrace and tuning kernel parameters. The code was merged in around 15 smart phones.

Academic Projects

- **Plug board Proxy (Networking)**: Developed a plug board proxy that adds an extra layer of encryption to connections towards TCP services. Clients running on same server connect to pbproxy, which then relays all traffic to actual services. (Mar '16)
- **Asynchronous Work Queue Manager (Kernel Programming)**: Developed a kernel module to serve as an asynchronous work queue manager with configurable worker threads. Implemented netlink sockets to propagate callbacks from kernel to user land and throttling to improve job extraction latency. (Nov '15)
- **Anti-Malware Stackable File System (Kernel Programming)**: Implemented a stackable, anti-malware Linux file system that prevents the existing file system from being corrupted by malware by detecting virus pattern while attempting to open, read and write a file. (Oct '15)

- **File Encryption System Call (Kernel Programming)**: Implemented a system call in Linux kernel, which supports multiple ciphers to encrypt or decrypt an input file.(Sep '15)
- **Peg- Solitaire, Connect Four, Sudoku (Game Development)**: Designed a Peg Solitaire, Connect Four and Sudoku using Iterative Deepening Search, Alpha-beta pruning and Backtracking, MRV and Forward Chaining Artificial Intelligence Algorithms respectively in Python. (Aug '15)

Honors and Awards

- Selected in top 20 students for the Code House event organized by VMware in August15 - August17, 2016.
- Ranked first among batch of 60 students in my Computer Science Engineering Branch.
- Ranked fifth among batch of 500 students at High School Level A.I.S.S.E 2005