Mayank Sharma

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EXPERIENCE

WALMART | Software Engineer
Aug 2020 – Present

- Designed and developed a tenant-agnostic Ads-Platform from scratch to fetch sponsored and display ads (OpenRTB compliant) to various business units of Walmart.
- **Improved the 95th percentile round-trip time** from **800ms to 200ms** after migration to Ads-Platform while serving **6 million req/hr** using Spring WebFlux.
- Have full ownership of multiple microservices, deployed on Azure compute, managed using Kubernetes and with e2e telemetry setup using **Prometheus, Splunk, Grafana, and Dynatrace**.
- Developed the Apollo-Federation subgraph server using Java-Springboot-GraphQL stack, **serving nearly 150 million ad requests per day**.

GNOME | Google Summer of Code [Report]
May 2019 – Aug 2019 | Mentor: Ondřej Holý

- **Improved build times by** $\sim$ **45%**, by porting libgdata (C library for Google Drive) from *autotools + make* to *meson + ninja* build system, by writing build files for compiling and linking a shared library consisting of 100+ objects.
- Developed a new API for libgdata, and fixed the copy, move, delete and mkdir operations in GVfs.

WALMART | Software Engineering Intern
May 2019 – July 2019 | Bengaluru, India

- **Improved the number of concurrent users/hr by 30%** by developing REST APIs for the Service Orchestration Layer.
- Developed and published **mozart-utils**, an npm package containing utility code, to Walmart's internal Nexus Repository

KEY PROJECTS

LLC SIDE & COVERT-CHANNEL ATTACKS
IIT Kanpur | Prof. Biswabandan Panda

- Successfully mounted a covert channel attack on a victim running some benign process on a different core, using the FLUSH + RELOAD attack on cache, achieving 65+% accuracy.

SECURE KEY-VALUE STORE | Systems Security [Code]
IIT Kanpur | Prof. Pramod Subramanyam

- Designed and implemented a secure key-value store (in Go) with sharing semantics under the assumption of a malicious datastore.

IMPROVING SECURITY OF ZOOBAR SERVER
IIT Kanpur | Prof. Pramod Subramanyam

- Exploited buffer overflow, format string, DoS vulnerabilities and crafted browser based attacks followed by fixing bugs and implementing principle of least privileges for better security.

GEM OS | Operating System [Code]
IIT Kanpur | Prof. Debadatta Mishra

- Implemented Multi-level paging, signals like SIGINT, SIGSEGV and SIGFPE, exception handlers like page-faults and divide-by-zero and added system calls like expand, shrink, write, sleep, clone, etc.
- Designed a scalable ext-2 like FUSE-based filesystem for GemOS.

EDUCATION

IIT KANPUR
B.Tech in Computer Science & Engineering
Class of 2020: GPA: 7.0/10.0

CHILDREN SR. SEC SCHOOL
AISSCE Class XII (CBSE): 92.0%

CENTRAL ACADEMY SR. SEC SCHOOL
AISSE Class X (CBSE): 10.0/10.0

ACHIEVEMENTS

- All India Rank 630
  JEE Advanced 2016
- All India Rank 2237
  JEE Mains 2016
- All India Rank 854
  KVPY 2015
- All India Rank 1707
  NSTSE 2014

SKILLS

PROGRAMMING
Java (Spring Boot) •Typescript • C/C++ •Golang • python • bash • x86 Assembly

WEB
Node.js • Kubernetes • GraphQL • Apollo Federation • MongoDB

TOOLCHAIN
MacOS • Linux • Windows • gdb • Valgrind • meson • Git • Vim

COURSEWORK

- Malware Analysis and IDS
- Secure Memory Systems
- Security of Critical Infra.
- Systems & Cyber Security
- Compiler Design
- Parallel Computing
- Operating Systems
- Computer Networks
- Blockchain Tech. & Applications
- Intro. to Machine Learning
- Database Systems
- Data Structures & Algorithms