

# 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 Display and Sponsored Ads to various business units of Walmart.
- Improved the p95 RTT** (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 Kubernetes and with e2e telemetry setup using Prometheus, Splunk, Grafana and Dynatrace.

### GNOME | GOOGLE SUMMER OF CODE (GSoC)

May 2019 – Aug 2019 | Mentor: Ondřej Holý

- Improved build times by ~ 45%**, by porting libgdata 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 (C library for Google Drive), and fixed the copy, move, delete and mkdir operations in GVfs.

Report

### WALMART LABS | 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

### EARLYSALARY | SOFTWARE DEVELOPER INTERN

May 2018 – July 2018 | Pune, India

- Implemented centralized Authentication and Authorization, using JumpCloud's DaaS (**LDAP**).

## 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

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.

Code

### 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

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.

Code

## EDUCATION

### IIT KANPUR

B.TECH IN COMP. SCI. & ENGG.  
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 • Glib

### WEB

Node.js • Kubernetes • MongoDB

### OSes & TOOLS

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

## COURSEWORK

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