

# Harsha Sharma

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## EDUCATION

### IIT ROORKEE

3RD YEAR BTECH  
 ENGINEERING PHYSICS  
 Expected May 2020

### 12TH C.B.S.E

May 2016 | MGPS, Jaipur  
 Percentage: 95.2 / 100.0

### 10TH C.B.S.E

May 2014 | MGPS, Jaipur  
 CGPA: 9.8/10

## LINKS

Github:// [hs256](#)  
 LinkedIn:// [harsha-sharma-a5085012b](#)  
 Twitter:// [@harshasharma256](#)

## FIELDS OF INTEREST

Operating Systems  
 Computer Architecture  
 Compiler Design  
 Microprocessors and Peripheral Devices  
 Computer Networks  
 Information and Network Security  
 Web Development

## COURSEWORK

### UNDERGRADUATE

Microprocessors and Peripheral Devices  
 Computer Programming  
 Engineering Analysis and Design  
 Analog and Digital Electronics  
 Optimization Techniques  
 Electrical Science  
 Signals and Systems  
 Numerical Computation  
 Fuzzy Set and Theory

## SKILLS

C • C++ • Python • Fortran  
 GDB • IDA • Autotools •  
 Parsers • Vim • Matlab  
 Linux Kernel Development •  
 Genode Framework •  
 L4 Fiasco Microkernel •  
 PHP • MySQL

## INTERNSHIPS

### RESEARCH INTERN AT TECHNICAL UNIVERSITY OF MUNICH | PROJECT - CHECKPOINT AND RESTORE MECHANISM IN GENODE AND L4 FIASCO MICROKERNEL [REPORT]

14th May, 2018 - 27th July, 2018

- Reverse engineering and debugging for comparing capability map in Genode and capability space in kernel before checkpointing and after restoring states
- Implemented custom IRQ session for signal handler session in Genode
- Worked on checkpointing and restoring missing IRQ capabilities.

### GOOGLE SUMMER OF CODE STUDENT DEVELOPER | PROJECT - NETFILTER (LINUX KERNEL NETWORK FIREWALLING)

14th May, 2018 - 14th August 2018

- Work on implementing connection tracking timeout policies in nftables.
- Addition, deletion and listing of connection tracking timeout objects and assigning timeout policy via nftables rule.

### LINUX-KERNEL INTERN IN OUTREACHY | PROJECT - NFTABLES

5th Dec 2017 - 5th March 2018

- 4 interns selected worldwide in Linux-kernel organisation.
- Implemented unique u64 handles for tables, chains and all objects for easy lookup and deletion.
- Improving test infrastructure and major bug fixes.

## PROJECTS

### BACKDOOR | SDSLABS, IITR

- Information security platform for practice and organizing regular internationally-well known CTF contests.
- Written in PHP based on MVC architecture and uses Memcache for caching.

### BEAST | AUTOMATED, CONTAINERIZED CHALLENGE DEPLOYMENT

- Docker based tool to automate deployment of challenge containers spawned individually for each user.

## ACTIVITIES

- Presented work on implementing connection tracking timeout policies in NFWS18 (Netfilter Conference), Berlin.
- Speaker at "How to crack GSOC and Outreachy" talk in IIT Roorkee

### SOFTWARE DEVELOPMENT SECTION, IIT ROORKEE

- I am active member of SDSLabs, an awesome group of students constantly striving to innovate and foster technical activities at IIT Roorkee. Some of our projects are hosted on github: [github.com/sdslabs](https://github.com/sdslabs).

### CHOREOGRAPHY & DANCE SECTION, IIT ROORKEE

- Member of official Choreography and Dance Section, IIT Roorkee.

## REFERENCES

1. **PROF. DR. UWE BAUMGARTEN**  
Associate Professor,  
Chair of Operating Systems,  
Technical University of Munich,  
Munich, Germany  
baumgaru@tum.de
2. **PROF. PABLO NEIRA AYUSO**  
Professor, University of Seville,  
Head of Netfilter Organisation  
pablo@netfilter.org