

# Abhilash Gupta

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Security enthusiast, interested particularly in Fuzzing, Web Security, Usable Security and Privacy.

## EDUCATION

### UNIVERSITÄT DES SAARLANDES

#### M.Sc. IN COMPUTER SCIENCE

Oct'18-Feb'22 | Saarbrücken, Germany

CPI 1.4/4.0 (Best=1.0)

### IIT BOMBAY

#### B.TECH IN COMPUTER SCIENCE

Jul'11-May'15 | Mumbai, India

CPI 7.50/10.0 (Best=10.0)

## SKILLS

### PROGRAMMING

Python • C • C++ • Java • Bash • R • LLVM IR • HTML/CSS • Javascript • Assembly

### OTHERS

MySQL • PostgreSQL • Django • gRPC • Protobuf • LXDE • Docker •  $\LaTeX$  • BDD • TDD

## COURSEWORK

- Secure Web Development
- Web Security
- Generating Software Tests (*Research Asst*)
- Usable Security (*Research & Teaching Asst*)
- Security and Cryptography
- Operating Systems
- Distributed Systems
- Computer Architecture
- Database and Information Systems
- Computer Networks (*Teaching Asst*)
- Artificial Intelligence
- Data Structures and Algorithms
- Discrete Structures
- Software Systems
- Ethics for Nerds

## EXTRACURRICULARS

### LANGUAGES

Assamese • English (C2) • German (B1) • French (A1) • Hindi/Urdu • Bengali

### SPORTS

Volleyball • Table Tennis • Cricket • Kho-kho

### HOBBIES & INTERESTS

Hiking • Comics • Penpalling • Learning languages • Philately • History

## LINKS

Webpage:// [abhilashgupta](#)

GitHub:// [abhilashgupta](#)

LinkedIn:// [guptaabhilash](#)

## EXPERIENCE

### CISPA | STUDENT RESEARCHER | Sep'19 – Present | Saarbrücken, Germany

- Developed a C++ tool to mutate benign C code into vulnerable LLVM IR code
- Developed a Python client API support tool for the Debug Adapter Protocol
- Implemented the LLVM IR version of the F1 fuzzer
- Studied car drivers' information demand on safety and security critical incidents [1]
- Studied people's privacy perceptions on shared device usage

### JUNIPER NETWORKS | SE III | Aug'15 – Aug'18 | Bengaluru, India

- Led the Packet Forwarding Engine Unit testing Framework project
- Designed a Docker solution to test devices on any machine by leveraging RPCs
- Reduced the PFE Unit testing time by over 70%
- Worked on features such as IRB, BFD and private VLANs on the EX series switches

### SAMSUNG R&D CENTER | INTERN | Summer'14 | Bengaluru, India

- Worked on porting LTE simulator hardware dependencies to Intel DPDK
- Achieved successful call setup between the simulator and a target machine

### WEGILANT NET SOLUTIONS | INTERN | Summer'13 | Mumbai, India

- Developed a Java based admin page scanner and phishing page generator
- Wrote a white paper for the company describing fuzzing practices at Mozilla

## KEY PROJECTS

### Grammar fuzzing CLI utilities

Fuzzed CLI utilities by automatically extracting their configuration options

### File System Implementation

Implemented Bytestream FS and cache using 2-hand clock algorithm in a Linux OS

### Secure E-Commerce Application

Developed a secure marketplace webapp, capable of SSO and account management

### Yet-Another File System

Implemented a multi-server FS with file sharing, caching lock servers and Paxos

### Student Activity Database System

Designed relational models with 70+ relations and developed in JSP; PostgreSQL backend

### Fashion Advisor Application

Developed webapp to advise users fashion based on their physique

## THESIS

### Grammar Fuzzing Command line utilities in Linux

Grammar fuzzed 44 CLI utilities using options in Linux to detect failures in 11 of them

Oct'21 - Feb'22

### Browser Defenses against XSS Attacks [2]

Developed a Firefox browser extension that mitigates XSS and clickjacking attacks

Jan'15 - May'15

## PUBLICATIONS

[1] Investigating Car Drivers' Information Demand after Safety and Security Critical Incidents at CHI Conf. on Human Factors in Computing Systems, 2021

[2] Two for the price of one: A combined browser defense against XSS and clickjacking at Intl. Conf. on Computing, Networking and Communications, 2016

## OTHER ACTIVITIES

- 2020 Awarded the Saarland Stipendium Scholarship
- 2017-2019 Open-source contributions to [Duckduckgo](#) and [FuzzingBook](#)
- 2014 Semi-finalist at Code-Unicode, a secure programming competition
- 2014-2015 Led the CSE Department Academic Mentorship Program at IITB
- 2013 Qualified for ACM-ICPC Asia Amritapuri onsite regional rounds
- 2013 Special mention for Fashion Advisor Application at Yahoo HackU
- 2011 Indian National Mathematics Olympiad (INMO) Finalist
- 2011-2013 Represented IIT Bombay in Kho-kho, an outdoor Indian sport
- 2007-2015 Awarded the National Talent Search Examination scholarship