

# Abhilash Gupta

## Curriculum Vitae

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### Interests

**Computer Security, Usable Security and Privacy .**

### Education

- 2018–present **Master of Science**, *Saarland University (UdS)*, Saarbrücken, GERMANY.  
Specializing in Computer Science Expected graduation - Sep, 2020, GPA - 1.9/4.00
- 2011–2015 **Bachelor of Technology**, *Indian Institute of Technology (IITB)*, Mumbai, INDIA.  
Specialized in Computer Science and Engineering GPA - 7.5/10.00

### Undergraduate Thesis and Publication

- title *Browser Defence against XSS and Clickjacking*
- supervisor Prof. Bernard Menezes, IIT Bombay
- August 2014 - April 2015 Developed a client side extension for the Mozilla Firefox browser for prevention of reflected server side XSS attacks using string comparison between HTTP request and response while also ensuring that framebusting code used as prevention for clickjacking attacks isn't disabled by this algorithm.
- publication Rao, S., Jain, N., Limaje, N., Gupta, A., Jain, M., Menezes, B.. Two for the price of one: A combined browser defense against XSS and clickjacking. At International Conference on Computing, Networking and Communications (ICNC), 2016.

### Work and Teaching Experience

- August 2015 - August 2018 **Software Developer**, *Juniper Networks*, Bangalore.
- Designed and developed the Packet Forwarding Engine Unit testing Framework.
  - Designed and developed a RPC mechanism using socket programming to support Unit testing on every device within the organisation.
  - Designed a docker based tool to test switches on any Linux machine using hardware simulators.
  - Combined together, the tools reduced testing time by over 70%.
  - Mentored 3 interns on these projects.
  - *Tools and Languages used:* Python, C, C++, protobuf, gRPC, Docker
- Autumn 2014 **Teaching Assistant**, *Computer Networks Lab Course (CS 378)*, IIT Bombay.
- Conceptualised and designed lab experiments and assignments for the course.
  - Guided students through their lab assignments; graded assignments and projects.
- Summer 2014 **Porting LTE codebase to Intel DPDK**, *Samsung R&D Center*, Bangalore.
- Worked on porting hardware specific dependencies in a LTE simulation codebase to Intel DPDK.
  - Successfully achieved initial call setup using DPDK between the simulator and a target machine.
  - *Languages used:* C
- Summer 2013 **Ethical Hacking Tool**, *Wegilant Net Solutions*, Mumbai.
- Developed a Java tool to scan for admin pages and generate phishing pages of websites.
  - Trained over 30 students in certification courses on Ethical Hacking and Android App Development.
  - Wrote a white paper on behalf of the company describing fuzzing practices at Mozilla
  - *Languages used:* Java, SQL

### Preferred Programming Languages

**Python, C++, C.**

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## Projects

- Summer 2019 **Configuration fuzzing coreutils binaries**, *Guide: Prof. Andreas Zeller, UdS.*  
Extracted options and corresponding values for coreutils binaries like ls and cat and then fuzzed them using different combinations of the options with valid and invalid values for the options. Presented the results in a seminar.
- Winter 2018 **Yet-Another File System (YFS)**, *Guide: Prof. Peter Druschel, UdS.*  
Implemented a multi-server file system similar to Frangipani. It included developing a file server with reading, writing and sharing files, caching lock server, caching extent server and consistency and Paxos on a barebones codebase.
- Autumn 2013 **My Style Buddy**, *Yahoo! HackU, IITB.*  
Developed a web based fashion utility recommendation system for ladies based on features like body build, height, complexion, age of user and the occasion intended. It won an honourable mention at the event among 48 hacks submitted.
- Autumn 2013 **Student Activity Management System**, *Guide: Prof. Umesh Bellur, IITB.*  
Developed a Database Management System to manage all the activities at Student Activity Centre, IIT Bombay. We conceptualised the ER model, normalised 70 plus relations and deployed the system on a PostgreSQL back-end with a JSP-based UI.
- Autumn 2012 **Teach-Me-CS213**, *Guide: Prof. Varsha Apte, IITB.*  
Developed a tool for the CS 213 (Data Structures and Algorithms) course taught at IIT Bombay to help visualise the implementation and working of various data structures and sorting algorithms.
- Spring 2012 **Kamisado**, *Guide: Prof. Amitabha Sanyal, IITB.*  
Developed a player vs computer chess-like board game called Kamisado implementing Minimax Algorithm with Alpha-Beta pruning.

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## Seminars

- October 2014 **Lattice Based Cryptography - GGH Cryptosystem**, IITB.  
Introduced Lattices, Hadamard Ratio and hard problems on lattices, and then presented an example of its application to cryptography: the GGH cryptosystem and its cryptanalysis.
- March 2014 **Self Organisation and its applications**, IITB.  
Introduced Self Organisation and then described its applications in fields like speech recognition.

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## Extracurricular Activities

### Technical

- Contributed bugfixes to The Fuzzing Book(<https://www.fuzzingbook.org>) 2019
- Contributed the Scapy cheat sheet on the Duckduckgo search engine. 2017
- Semi-finalist at Code-Uncode, a national secure programming competition. 2014
- Qualified for the ACM-ICPC Asia Amritapuri onsite regionals round. 2013

### Others

- Member of Coursera's beta testing team Since 2017
- Led the CSE Department Academic Mentorship Program at IITB 2014-15
- Acted as the Hostel Literary Arts and Debating Secretary. 2012-13
- Co-wrote an article about mobile radiation for Insight (IITB newsletter). 2013
- Represented IITB in Kho kho, an outdoor Indian sport. 2012
- Passionate about learning languages: working knowledge of Assamese, Bengali, English and Hindi, and basic knowledge of French, German and Telugu.