

Shubham Agarwal

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PROFILE

Post-Doctoral researcher specializing in Web security, with expertise in application security, data privacy, and large-scale vulnerability detection and analysis. I currently focus on end-to-end threat analysis of Internet applications and understanding S&P perspectives of different stakeholders. In my free time, I like to tinker around with self-hosted applications and read about human civilizations and cultural philosophies..

EDUCATION

CISPA Helmholtz Center for Information Security & Universität des Saarlandes <i>Ph.D in Computer Science, Web Security</i>	Saarbrücken, DE March 2021 - August 2025
Universität des Saarlandes <i>M.Sc. in Computer Science</i>	Saarbrücken, DE April 2018 – Feb 2021
Vellore Institute of Technology, Vellore <i>B.Tech. in Computer Science and Engineering (with Specialization in Bioinformatics)</i>	Vellore, IN July 2013 – May 2017

Technical Skills

Programming & Frameworks: Python, JavaScript/TypeScript, Node.js, C++, C#.
Operating Systems: Linux (Ubuntu, CentOS, Debian), macOS, Windows, Android.
Operations, Infrastructure & Deployment: CI/CD, Docker, Kubernetes, Grafana, Prometheus, nginx, Apache.
Security Practices: OWASP Top 10, Secure Coding Practices, Threat Modeling, Vulnerability Assessment.
Protocols & Networking: OSI/IP stack, WebSockets, SSH, SSL/TLS, OAuth.
AI & Machine Learning: PyTorch, Keras, scikit-learn, AI Agents.
Others: Automation (Playwright, Selenium, etc.), REST API frameworks (Django, Flask, etc.), GraphQL, and Git.

PUBLICATIONS

- Ali Mustafa, Jannis Rautenstrauch, Florian Hantke, **Shubham Agarwal**, Stefano Calzavara, Ben Stock. "LEAKYLINKS: Measuring the Security and Privacy Risks of URL Scanning Services". In IEEE S&P 2026.
- **Shubham Agarwal**, Rafael Mrowczynski, Maria Hellenthal, Ben Stock. "I have no idea how to make it safer": Studying Security and Privacy Mindsets of Browser Extension Developers. In USENIX Security 2025.
- **Shubham Agarwal**, Aurore Fass & Ben Stock. Peeking through the window: Fingerprinting Browser Extensions through Page-Visible Execution Traces and Interactions. In ACM CCS 2024.
- **Shubham Agarwal**. Helping or Hindering? How Browser Extensions Undermine Security. In ACM CCS 2022.
- **Shubham Agarwal** & Ben Stock. First, Do No Harm: Studying the manipulation of security headers in browser extensions. In Workshop on Measurements, Attacks, and Defenses for the Web (MADWeb) 2021.

TALKS

German OWASP Day 2025 (Link)	November 2025 — Düsseldorf, DE
German OWASP Day 2024 (Link)	November 2024 — Leipzig, DE
Ad-filtering Dev Summit 2024 (Link)	October 2024 — Berlin, DE

TEACHING EXPERIENCE

The Web Security Seminar — Tutorial Assistant <i>Graduate course Offered by CISPA & Saarland University</i>	Saarbrücken, DE 2021 – 22, 2022 – 23, 2024, 2024 – 25
Thesis Supervision (at Universität des Saarlandes) · Master Thesis Title: EXterminate: Disrupting Web Extensions at Scale · Bachelor Thesis Title: Longitudinal Evolution of Electron Applications Security · Bachelor Thesis Title: Temporal Analysis of the Security of Extension Updates	Saarbrücken, DE Mar 2024 – Aug 2024 Oct 2022 – Dec 2022
Software Engineering — Tutorial Assistant <i>Graduate course, Offered by Chair of Software Engineering, Saarland University</i>	Saarbrücken, DE Oct 2019 – Mar 2020

ACADEMIC SERVICES

Program Committee

- Annual Computer Security Applications Conference (ACSAC) 2026, 2025.
- RAID 2026
- The Web Conference (WWW) 2026.
- MADWeb Workshop 2023 – 2026 (Co-located with Network and Distributed System Security Symposium).
- International Conference on Information Systems Security 2024.
- SecWeb Workshop 2023 (Co-located with IEEE S&P 2023).

Artifact Evaluation Committee

- USENIX Security 2026, 2025 (**Noteworthy Artifact Reviewer), 2024 (**Distinguished Artifact Reviewer), 2023, 2022.
- Network and Distributed System Security Symposium 2024.

Sub-reviewer

- IEEE S&P 2025.
- Network and Distributed System Security Symposium 2025.
- USENIX Security 2024.

WORKING EXPERIENCE

Post-Doctoral Researcher

Security & Privacy Engineering Lab (SPRING), Max Planck Institute for Security & Privacy

Bochum, DE
Since Sep 2025

- Full-time security and privacy researcher.
- Deployment, monitoring and maintenance of Incus/LXD node clusters used for intensive computation.
- Collaboration and management of different research projects.
 - Supervision of Bachelor/Master Thesis.

Research Assistant

Internet Architecture, Max Planck Institute for Informatics

Saarbrücken, DE
Feb 2020 – Feb 2021

- Helped set up an in-house SDN infrastructure - C++, P4, Python.
 - Solely implemented the tests and configured the L2 routing policies for the programmable SDN.

Part-time Developer

IT Inkubator (Foldio GmbH), Universität des Saarlandes

Saarbrücken, DE
Jun 2019 – Nov 2019

- Collaborated and developed core product features inside a microcontroller - C++, Python.
- Implemented the core component and integrated it with the Microbit/Calliope Mini framework.
 - Helped to set up different development and testing environments for feature rollout.

Product Engineering Trainee

INSZoom Technologies Private Limited (now acquired by Mitrastech Holdings Inc.)

Bengaluru, IN
Feb 2017 – Mar 2018

- Worked as full-stack application engineer - C#, JavaScript Frameworks, MS SQL 2016, CosmosDB.
- Designed and developed a secure authentication module to integrate third-party reporting tool.
 - Delivered the production-ready module within 60 days with a record 0 bugs.
 - Awarded *Employee of the Quarter (Q1 2018)* for leadership and execution.
- Implemented and deployed web services for routine actions and periodic notifications.
 - Led a team of three developers and built a highly customized notification endpoint for clients/enterprises.
- Collaborated and built automation tools to handle immigration-related documents.
 - Reduced the intensive manual effort of mapping PDF entries to HTML form fields by 90%.

AWARDS & RECOGNITIONS

Full Scholarship for Master's Studies

International Max Planck Research School

Saarbrücken, DE
Apr 2018

Hackathon Winners * 2

INSZoom Technologies Private Limited

Bengaluru, IN
Jun 2017 & Dec 2018