Dr.-Ing. Aurore Fass

Visiting Assistant Professor at Stanford
Research Group Leader at CISPA

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Bio

Aurore Fass is a Visiting Assistant Professor of Computer Science at Stanford University and a Research Group Leader at CISPA Helmholtz Center for Information Security. Her research broadly focuses on **Web Security & Privacy**, **Web Measurements**, and **Machine Learning**. Specifically, she is interested in detecting malware & vulnerabilities on the Web and collecting data to better understand and improve user security and privacy.

Scientific Career

2021–2023 **Visiting Assistant Professor**, *Stanford University*, U.S.

2021–2023 **Research Group Leader**, *CISPA Helmholtz Center for Information Security*, Germany.

2021 **Postdoctoral Researcher**, *CISPA Helmholtz Center for Information Security*, Germany.

2017–2021 **Ph.D. Student**, *Saarland University & CISPA Helmholtz Center for Information Security*, Germany.

- Ph.D. thesis: *Studying JavaScript Security Through Static Analysis*
- Advisors: Michael Backes and Ben Stock

Education

2014–2017 **Grande École** (similar to a Master Degree), *TELECOM Nancy*, France, valedictorian.
Major: Telecommunication, Network, and Security

- Master thesis: German Federal Office for Information Security (BSI), Germany
  Automated clustering of JS samples for the detection of malware contained in obfuscated code
- Industrial project: French Ministry of Defense, France
  Implemented an Xposed module to monitor Android devices; group of 4 persons (6 months)
- Internship: Fraunhofer IOSB, Germany
  Implemented a passive asset detection system (8 weeks)

2012–2014 **Preparation for the highly competitive nationwide entrance examination to the French Grandes Écoles**, France.
Major: Mathematics, Physics, and Computer Science

2012 **High school graduation**, France, graduated with distinction ("mention très bien"), European section.
Major: Mathematics, Physics & Chemistry, Biology, and German

Awards and Honors

2022 **PC members – Honorable mentions**, *TheWebConf*.

2021 **Inspiring Career**, *French Grande École TELECOM Nancy*, Remote.

2019–2022 **Program of Excellence**, *Saarland University*, Germany.

2017 **Valedictorian**, *French Grande École TELECOM Nancy*, France.

2016 **Best Student Recognition Event**, *IBM*, UK.

Publications

Kimberly Ruth, **Aurore Fass**, Jonathan J. Azose, Mark Pearson, Emma Thomas, Caitlin Sadowski, and Zakir Durumeric. A World Wide View of Browsing the World Wide Web. In *ACM Internet Measurement Conference (IMC)*, 2022.

Aurore Fass, Dolière Francis Somé, Michael Backes, and Ben Stock. DoubleX: Statically Detecting Vulnerable Data Flows in Browser Extensions at Scale. In *ACM CCS*, 2021.

Marvin Moog, Markus Demmel, Michael Backes, and **Aurore Fass**. Statically Detecting JavaScript Obfuscation and Minification Techniques in the Wild. In *Dependable Systems and Networks (DSN)*, 2021.

Aurore Fass, Michael Backes, and Ben Stock. HideNoSeek: Camouflaging Malicious JavaScript in Benign ASTs. In *ACM CCS*, 2019.

Aurore Fass, Michael Backes, and Ben Stock. JStap: A Static Pre-Filter for Malicious JavaScript Detection. In *ACSAC*, 2019.

Aurore Fass, Robert P. Krawczyk, Michael Backes, and Ben Stock. JaSt: Fully Syntactic Detection of Malicious (Obfuscated) JavaScript. In *DIMVA*, 2018.

Community Services

PC Co-Chair MADWeb 2023 (co-located with NDSS)

PC Member S&P 2023, EuroS&P 2023, TheWebConf 2023 & 2022, ACM CCS 2022 & 2021, ARES 2022, SecWeb 2022 & 2021

Artifact Committee USENIX Security 2021, ACSAC 2018

External Reviewer NDSS 2022–2020, USENIX Security 2022–2020, EuroS&P 2019, ACSAC 2019 & 2018, ACM CCS 2018

Hiring Committee CISPA faculty hiring committee 2020

Selected Talks

DoubleX: Statically Analyzing Browser Extensions at Scale

Jul 2022 Berkeley Security Seminar. Berkeley, CA, U.S.

May 2022 RuhrSec. Bochum, Germany. (extended version)

Apr 2022 Stanford Computer Forum – Security Workshop. Stanford, CA, U.S.

Nov 2021 Stanford Security Lunch. Stanford, CA, U.S.

Studying JavaScript Security Through Static Analysis

Mar 2022 Palo Alto Networks (CA, U.S.). Remote. (extended version)

Jun 2021 Spirals Webinar at Inria Lille (France). Remote.

Statically Analyzing Malicious JavaScript in the Wild

Mar 2021 Webinar at LORIA (France). Remote.
Dec 2020 BINSEC Webinar at CEA (France). Remote.

HideNoSeek: Camouflaging Malicious JavaScript in Benign ASTs

May 2020 RuhrSec. Remote.
Mar 2019 Grande Region Security and Reliability Day (GRSRD). Nancy, France.
Feb 2019 MADWeb. San Diego, CA, U.S.

JaSt: Fully Syntactic Detection of Malicious (Obfuscated) JavaScript

Nov 2018 Blackhoodie. Berlin, Germany.
Jun 2018 Malware Meeting at LORIA. Nancy, France.
Mar 2018 Grande Region Security and Reliability Day (GRSRD). Saarbrücken, Germany.

Publicly Available Software

DoubleX Static browser extension analyzer: detection of suspicious external data flows

HideNoSeek Static analyzer to detect syntactic clones in JavaScript inputs

JStap Static and modular malicious JavaScript detector

JaSt Static malicious JavaScript detector

Teaching

Courses

WS 2020-2021 **Temporary Lecturer at TELECOM Nancy** (Université de Lorraine, France)
- Browser Extensions: Architecture and Security Consideration (lectures and practicals for MSc students)

WS 2019–2020 **Seminar: Joint Advances in Web Security**
- Browser Extensions: Security and Vulnerabilities
- Overview of Malicious JavaScript Detection Techniques and Attacks

WS 2018–2019 **Seminar: Joint Advances in Web Security**
- Overview of Malicious JavaScript Detection Techniques
- Cryptojacking: Definition, Detection, and Dimensions

Ph.D. Student Collaboration, Mentoring & Supervision

Winter 2022– **Liz Izhikevich** – *Internet Scanning*, with Zakir Durumeric, Stanford University

Fall 2021– **Kimberly Ruth** – *Browsing Behavior*, with Zakir Durumeric, Stanford University

Fall 2021– **Shubham Agarwal** – *Browser Extension Security*, CISPA

Bachelor Student Mentoring & Supervision

Spring 2022– **Sheryl Hsu** – *Browser Extension Security*, Stanford University

Alumni

2022 **Mark Tran** (BSc student) – *Browser Extension Fingerprinting*
Vrushank Gunjur (BSc student) – *Over-Privileged Extensions*

Nahum Maru (BSc student) – *Browser Extension Crawler*

Fengchen Gong (MSc student) – *Browser Fingerprinting*

2021 **Liana Patel** (Ph.D. student) – *Web Crawler*, with Zakir Durumeric

Luca Pistor & **Nathan Bhak** (BSc students) – *Exam Software Security*

Paul Szymanski (BSc thesis) – *A Study of State-of-the-Art Call Graph Creation Approaches for JavaScript*, with Cristian-Alexandru Staicu

2020 **Anne Christin Deutschen** & **Luc Seyler** (BSc students) – *Browser Extension Vulnerability*, with Dolière Francis Somé

2019–2020 **Marvin Moog** & **Markus Demmel** (BSc students) – *Analysis of JavaScript Obfuscation Techniques*

2019 **Maximilian Zöllner** & **Niklas Kempf** (BSc students) – *Intelligent Fuzzing System for JavaScript*

2018 **Nils Glörfeld** (BSc student) – *Malicious JavaScript Deobfuscation*

Dennis Salzmann (BSc student) – *Malicious JavaScript Detection*

Additional Skills – Languages

French	Mother tongue	
English	Trilingual proficiency	*TOEIC score: 910 (2014); living in the U.S. since 2021*
German	Trilingual proficiency	*C1 Certificate (2016); lived in Germany 2017–2021*