

TOMMASO INNOCENTI

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Research Overview

My research focuses on Security and Privacy to increase the security of general users. My works reflect my passion and tenacity to investigate complex security problems. With my research, I increased the security of the Best Current Practice of OAuth and the OpenID protocol. Various topics in Web Security attract my interest, but the current focal point of my research is Web Authentication.

EDUCATION

Ph.D. Computer Science <i>Cybersecurity</i> Northeastern University GPA: 4.0/4.0	Sep. 2018 – (Expected Nov. 2024) Boston, USA
Master in Computer Science and Engineering Politecnico di Milano Grade: 101/110	Sep. 2014 – May 2018 Milano, Italy
Erasmus Experience Universidad Complutense de Madrid (UCM)	Sep. 2015 – Feb. 2016 Madrid, Spain

WORK EXPERIENCE

Amazon Amazon Web Services AWS security engineer <ul style="list-style-type: none">Evaluated current state of the art for domain generation algorithm (DGA) and DNS data-exfiltration identification against AWS detection system	Jun. 2024 – Aug. 2024 New York, USA
LEADERS Program Gordon Institute of Engineering Leadership Northeastern University <ul style="list-style-type: none">Applied experiential learning initiative that integrates leadership and professional-skills within a research project	Spring 2020 – (ongoing) Boston, USA
Research Assistant Northeastern University <ul style="list-style-type: none">Managed a research topic in a team environmentPerformed cutting edge security research	Apr. 2018 – Sep. 2018 Boston, USA
Master Thesis at SecLab <i>Less is more (Secure): automated reduction of the attack surface in modern Browser</i> <ul style="list-style-type: none">Investigated the Browser functionalities as potential attack surfaceInstrumented the Browser functionalities to define the minimal set of required functionalityGenerated a model able to reduce the Attack surface and increase the browser performance	Nov. 2016 – June 2017 Boston, USA

PROJECTS AND RESEARCH

"Only as Strong as the Weakest Link": On the Security of Brokered Single Sign-On on the Web <i>Tommaso Innocenti, Louis Jannett, Christian Mainka, Vladislav Mladenov, Engin Kirda</i> IEEE Symposium on Security and Privacy '25 (A.R. 106/739 = 14.3%)	Spring 2025 San Francisco, CA
OAuth 2.0 Redirect URI Validation Falls Short, Literally <i>Tommaso Innocenti, Matteo Golinelli, Ali Mirheidari, Kaan Onarlioglu, Bruno Crispo, Engin Kirda</i> ACSAC'23 (A.R. 104/497 = 20.9%)	Fall 2023 Austin, TX
FRAMESHIFTER: Security Implications of HTTP/2-to-HTTP/1 Conversion Anomalies <i>Bahruz Jabiyeve, Steven Sprecher, Anthony Gavazzi, Tommaso Innocenti, Kaan Onarlioglu, Engin Kirda</i> USENIX'22 (A.R. 392/2535 = 15.4%)	Sum 2022 Boston, MA
You've Got (a Reset) Mail: A Security Analysis of Email-Based Password Reset Procedures <i>Tommaso Innocenti, Ali Mirheidari, Amin Kharraz, Bruno Crispo, Engin Kirda</i> DIMVA'21 (A.R. 16/66 = 28.7%)	Sum 2021 Virtual

CONFERENCES AND PRESENTATIONS

OWASP Italy Meetup	March 2024
OAuth 2.0 Redirect URI Validation Falls Short, Literally	Virtual
OWASP Boston Chapter December meetup	December 2023
OAuth 2.0 Redirect URI Validation Falls Short, Literally	Boston, Massachusetts
Annual Computer Security Applications Conference (ACSAC)'23	December 2023
OAuth 2.0 Redirect URI Validation Falls Short, Literally	Austin, Texas
OAuth Security Workshop (OSW)'23	August 2023
OAuth 2.0 Redirect URI Validation Falls Short, Literally	Royal Holloway University, London
Federal Trade Commission (FTC) invited talk	October 2021
You've Got (a Reset) Mail: A Security Analysis of Email-Based Password Reset Procedures	Virtual
Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA)'21	July 2021
You've Got (a Reset) Mail: A Security Analysis of Email-Based Password Reset Procedures	Virtual

PROFESSIONAL SERVICES / NETWORK

Co-Chair Security Interest Group (SING) – Invited Expert	July 2024
World Wide Web Consortium (W3C)	
OpenID foundation	October 2023
Conformance-suite	
IETF OAuth Working Group	October 2023
OAuth 2.0 Security Best Current Practice	
Conference on Computer and Communications Security (CCS)'23	November 2022
Sub-reviewer	Copenhagen, Denmark
USENIX'23	August 2022
Sub-reviewer	Anaheim, California

SELECTED ACHIEVEMENT / GRANTS

Northeastern University Dissertation Completion Fellowships	August 2024
PhD network	Boston, Massachusetts
Third place at Tracer FIRE (Forensic Incident Response Exercise)	December 2023
Capture The Flag Workshop ACSAC '23	Austin, Texas
Annual Computer Security Applications Conference ACSAC '23	December 2023
OAuth 2.0 Redirect URI Validation Falls Short, Literally Travel grant	Austin, Texas
Connect2id security fix	September 2023
OAuth 2.0 Redirect URI Validation Falls Short, Literally	Bulgaria
OAuth Security Workshop (OSW)'23	August 2023
OAuth 2.0 Redirect URI Validation Falls Short, Literally Student scholarship	London, United Kingdom
GO Language CVE-2022-27664	September 2022
FRAMESHIFTER: Security Implications of HTTP/2-to-HTTP/1 Conversion Anomalies	Google, Mountain View
Apache Traffic Server CVE-2022-31780	August 2022
FRAMESHIFTER: Security Implications of HTTP/2-to-HTTP/1 Conversion Anomalies	Wakefield, Massachusetts
Erasmus+	Sep. 2015 Feb. 2016
Exchange program	Complutense University of Madrid

SKILLS

Languages: English C1 (TOEFL score:100/120) , Spanish A1, Italian (mother tongue)
Programming: C, Java, C++, Python, SQL, HTML, Node.js, Puppeteer, JavaScript, Docker, Git
Document Creation: Microsoft Office Suite, LaTeX