

THIJS VAN EDE

PhD Candidate at the University of Twente

CONTACT

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RESEARCH INTERESTS

My current research focuses on the application of large language models (LLMs) for the automated analysis and mitigation of security vulnerabilities. In the past, I concentrated on network-based approaches for constructing and analysing detection mechanisms and on developing AI systems for automated analysis of security events.

EXPERIENCE

- Since 2023 **Assistant Professor** *University of Twente*
Assistant professor on AI & Security in the Semantics, Cybersecurity & Services group.
- 2020 **Internship on AI for Network Intrusion Detection** *Lastline (now VMware)*
A project on automatically detecting patterns in network intrusion.

EDUCATION

- 2018-2023 **PhD in Computer Science - cum laude** *University of Twente*
Thesis: [Comprehending Security Events - Context-Based Identification and Explanation](#)
- 2020 **Research visit** *University of California - Santa Barbara (UCSB)*
Working together with Giovanni Vigna and Christopher Kruegel on the detection of relevant attack patterns in network intrusion detection systems.
- 2015-2017 **Master Degree in Cyber Security - cum laude** *University of Twente*
Thesis: [Detecting Adaptive Data Exfiltration in HTTP Traffic](#)
- 2012-2015 **Bachelor Degree in Computer Science - with honours** *University of Twente*
Minor in Computer Science and Finance at *Mälardalen University*.
- 2006-2012 **High School** *Chr. College Nassau Veluwe*
Pre-university education, specialising in science and engineering.

PUBLICATIONS

- 2023 Chakshu Gupta, **Thijs van Ede**, and Andrea Continella . [“HoneyKube: Designing and Deploying a Microservices-based Web Honeypot”](#). SecWeb 2023. 2023.
- Fatemeh Marzani, Fatemeh Ghassemi, Zeynab Sabahi-Kaviani, **Thijs van Ede**, and Maarten van Steen . [“Mobile App Fingerprinting through Automata Learning and Machine Learning”](#). 2023 IFIP Networking Conference (IFIP Networking). 2023.

- 2022 **Thijs van Ede**, Hojjat Aghakhani, Noah Spahn, Riccardo Bortolameotti, Marco Cova, Andrea Continella, Maarten van Steen, Andreas Peter, Christopher Kruegel, and Giovanni Vigna . *“DeepCASE: Semi-Supervised Contextual Analysis of Security Events”*. IEEE Symposium on Security and Privacy (SP). IEEE. 2022.
- Thijs van Ede**, Niek Khasuntsev, Bas Steen, and Andrea Continella . *“Detecting Anomalous Misconfigurations in AWS Identity and Access Management Policies”*. Proceedings of the ACM Cloud Computing Security Workshop (CCSW). 2022.
- Luca Morgese Zangrandi, **Thijs van Ede**, Tim Booij, Savio Sciancalepore, Luca Allodi, and Andrea Continella . *“Stepping out of the MUD: Contextual threat information for IoT devices with manufacturer-provided behaviour profiles”*. Proceedings of the Annual Computer Security Applications Conference (ACSAC). 2022.
- Max Meijer, Giacomo Tommaso Petrucci, Matthijs Schotsman, Luca Morgese, **Thijs van Ede**, Andrea Continella, Ganduulga Gankhuyang, Luca Allodi, and Savio Sciancalepore . *“Federated Lab (FedLab): An Open-source Distributed Platform for Internet of Things (IoT) Research and Experimentation”*. Proceedings of the 8th World Forum on Internet of Things (WF-IOT). 2022.
- 2020 **Thijs van Ede**, Riccardo Bortolameotti, Andrea Continella, Jingjing Ren, Daniel J. Dubois, Martina Lindorfer, David Choffness, Maarten van Steen, and Andreas Peter . *“FlowPrint: Semi-Supervised Mobile-App Fingerprinting on Encrypted Network Traffic”*. Proceedings of the ISOC Network and Distributed System Security Symposium (NDSS). 2020.
- Riccardo Bortolameotti, **Thijs van Ede**, Andrea Continella, Thomas Hupperich, Maarten Everts, Reza Rafati, Willem Jonker, Pieter Hartel, and Andreas Peter . *“HeadPrint: Detecting Anomalous Communications through Header-based Application Fingerprinting”*. Proceedings of the ACM Symposium on Applied Computing (SAC). 2020.
- 2019 Riccardo Bortolameotti, **Thijs van Ede**, Andrea Continella, Maarten Everts, Willem Jonker, Pieter Hartel, and Andreas Peter . *“Victim-Aware Adaptive Covert Channels”*. International Conference on Security and Privacy in Communication Systems (SecureComm). 2019.
- 2017 Riccardo Bortolameotti, **Thijs van Ede**, Marco Caselli, Maarten H. Everts, Pieter Hartel, Rick Hofstede, Willem Jonker, and Andreas Peter . *“Decanter: Detection of anomalous outbound http traffic by passive application fingerprinting”*. Proceedings of the 33rd Annual Computer Security Applications Conference (ACSAC). 2017.

REVIEWER SERVICE

- 2024 EuroS&P - Program Committee
- 2023 Raid - Program Committee
- 2022 ACSAC - Artifact Evaluation Committee
- 2022 USENIX Security Symposium - Artifact Evaluation Committee
- 2022 USENIX Security Symposium - Subreviewer for Andrea Continella
- 2021 USENIX Security Symposium - Subreviewer for Andrea Continella
- 2020 IFIP Networking - Subreviewer for Andreas Peter
- 2019 DBSEC - Subreviewer for Andreas Peter
- 2018 Information Security Conference (ICS) - Subreviewer for Andreas Peter

TEACHING

since 2024 Cyber Data Analytics

University of Twente

since 2021	Captain of the Twente Hacking Squad (THS) (CTF team)	<i>University of Twente</i>
since 2018	Teaching assistant for Machine Learning for Security (ML4sec)	<i>University of Twente</i>
2019-2020	Teaching assistant for Privacy Enhancing Technologies (PETs)	<i>University of Twente</i>

THESIS ADVISING

since 2023	Fine-Tuning a Language Model for CVE-to-CWE embedding	<i>University of Twente</i>
since 2023	Adversarial Machine Learning Attacks against DeepCASE	<i>University of Twente</i>
since 2023	Analyzing and Improving the Explainability of DeepCase using Behavior Nets	<i>University of Twente</i>
since 2021	KubeIDS: intrusion detection in kubernetes environments	<i>University of Twente</i>
2022	SecBERT: Analyzing reports with BERT-like models	<i>University of Twente</i>
2022	ShadowDroid - Detecting and Evading Dynamic Analysis in Android Applications	<i>University of Twente</i>
2022	Extracting Sections from PDF-Formatted CTI Reports	<i>University of Twente</i>
2021	Stepping out of the MUD: contextual threat awareness for IoT devices with manufacturer-provided behavioural profiles	<i>University of Twente</i>
2021	HoneyKube: Designing a Honeypot Using Microservices-Based Architecture	<i>University of Twente</i>
2019-2020	Context Aware Identifier Deobfuscation for Android Applications	<i>University of Twente</i>
2019	Identifying Application Phases in Mobile Encrypted Network Traffic	<i>University of Twente</i>

OTHER ADVISING

2019	Cyber Security Theme Course. Supervised three bachelor students in setting up our malware analysis lab.	<i>University of Twente</i>
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AWARDS

2018	Winner TGS bridging fund and finalist of TGS Award	<i>University of Twente</i>
2018	3 rd place KNVI Scriptieprijs voor Informatica en Informatiekunde for best M.Sc. Thesis in computer science	<i>KHMW</i>
2018	2 nd place Joop Bautz Information Security Award for best M.Sc. Thesis in cyber security	<i>PvIB</i>

REFERENCES

Maarten van Steen	m.r.vansteen@utwente.nl	<i>Professor at University of Twente</i>
Andreas Peter	a.peter@utwente.nl	<i>Professor at University of Oldenburg</i>
Andrea Continella	a.continella@utwente.nl	<i>Assistant Professor at University of Twente</i>