Torge Hinrichs

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Profile

Software security engineer with a PhD in Software Security and hands-on experience in vulnerability analysis, secure software engineering, Kubernetes-based infrastructure, security automation, and AI-assisted code analysis. Experienced in designing and operating production-like systems, analyzing large codebases, evaluating security tools, and translating research findings into practical engineering solutions. Strong software engineering background with experience across static analysis, ML/LLMs, CI/CD, and cloud-native environments.

EXPERIENCE

Hamburg University of Technology 05/2022 – today

Security Researcher, PhD (https://www.tuhh.de/softsec/homepage) Hamburg, Germany

- Conducted independent research focused on machine learning–based vulnerability detection, contributing to advancements in automated security analysis
- Reviewed and evaluated scientific manuscripts for leading conferences and journals, ensuring high academic and technical standards
- Supervised undergraduate and graduate theses and research projects, providing academic guidance and technical mentoring
- Designed, delivered, and supervised security-focused laboratory sessions and lectures, developing practical and theoretical cybersecurity skills among students
- Publications: https://scholar.google.com/citations?user=VI87IocAAAAJ&hl=de

HAW Hamburg 03/2020 – 05/2022

Project lead, digitization project "OPPSEE" (https://about.oppsee.de/) Hamburg, Germany

- State-funded project (Hamburg), 2 employees + 5 students.
- Managed and optimized project budgets, ensuring cost efficiency and alignment with organizational objectives
- Led project planning and execution, including timeline development, resource allocation, and risk management
- Designed and maintained scalable software architectures (Go-Lang + Kubernetes) to support system performance, reliability, and future growth
- Provided technical and team leadership, mentoring team members, coordinating cross-functional efforts, and driving project success.

HAW Hamburg 03/2018 – 05/2022

Research assistant Hamburg, Germany

- Developed and maintained automated testing and analysis systems to support research and applied projects
- Conducted independent strategic research and development, including technology transfer to industry and institutional partners
- Designed, developed, and delivered academic courses and lab sessions, serving as both instructor and teaching assistant

Verified Systems International 03/2016 – 03/2018

Test-engineer / Test Analyst / Developer (https://www.verified.de/) Bremen, Germany

- Designed and implemented simulation software for complex technical systems in aerospace and railway domains
- Developed and executed verification and validation tests for safety-critical systems in compliance with SIL C standards
- Analyzed, reviewed, and maintained technical documentation and test specifications to ensure regulatory and quality compliance

HAW Hamburg 03/2016 – 03/2018
Teaching assistant / Tutor Hamburg, Germany

- Supported lab sessions and developed new practical exercises for software testing and formal methods courses
- Contributed to curriculum development for certification and academic programs, including ISTQB Certified Tester
- Supervised student projects, including the Bachelor project on continuous integration for embedded systems

GFN AG 11/2013 – 02/2016
Lecturer in advanced training Hamburg, Germany

- Delivered independent professional training courses in Java (OCA, OCP, EE) certification programs
- Conducted lectures and workshops for Webmasters Europe certifications in online marketing and web development
- Designed course materials and assessments to support certification success and professional skill development

PROJECTS

Reviewer for Scientific Journals

- Regularly invited to serve as a peer reviewer for leading, high-impact journals in the field, including Empirical Software Engineering (EMSE), Journal of Systems and Software (JSS), and Science of Computer Programming (SCICO).

Sleep Journal & Med Journal

- Co-Founder of Extrahourdevs GmbH: Developing accessible and privacy-first mobile applications that digitizes and customizes medical journals, enabling patients, especially blind and visually impaired users, to securely record medical data on their smartphones while allowing clinicians to efficiently collect and analyze the information.
- Homepage: https://extrahourdevs.com/sleep-journal/
- Technologies: Flutter, Dart, Go-lang

Obsidian Plugin: PARA Shortcuts

- Adds useful commands to the Obsidian note-taking app to set up and manage your knowledge using the PARA method.
- 7000+ downloads, 30 Stars on Github https://github.com/gOATiful/para-shortcuts
- Technologies: TypeScript, React

EDUCATION

Hamburg University of Technology 05/2022 – today
Doctor of Philosophy, PhD in Computer Science Hamburg, Germany

- **Status**: About to submit
- **Thesis**: Working Title: Improving Vulnerability Detection Techniques using modern machine learning approaches.

Hamburg University of Applied Sciences (HAW Hamburg) Sep. 2014 – Sep. 2017
Master of Science in Computer Science (Informatik) Hamburg, Germany

- **Grade**: Very Good
- **Thesis**: IT Security in Future Digital Railway Control Systems — Risk Assessment and Analysis Approaches (Grade: Excellent)
- **Focus**: Cybersecurity, Critical Infrastructure Protection, Embedded Systems

Hamburg University of Applied Sciences (HAW Hamburg) Sep. 2011 – Aug. 2014
Bachelor of Science in Technical Computer Science (Technische Informatik) Hamburg, Germany

- **Grade**: Good
- **Thesis**: Identification of Geometric Objects in 3D Point Clouds (Grade: Very Good)
- **Focus**: Embedded Systems, Computer Vision, Signal Processing

Werner–Heisenberg–Gymnasium Sep. 2001 – Jun. 2011

Abitur (A-Level Equivalent), Focus in Physics Heide, Germany

- **Grade**: Good
- **Specialization**: Physics and Mathematics

SKILLS

Technical :Python (proficient), Dart, TypeScript, Golang, Git, LaTeX, Torch, CodeQL, Joern, Testing and Automation Frameworks, Reverse Engineering, Ghidra, MS Office, Linux, BurpSuite, Gitlab, GitHub, PublishOrParish, Bash, SAST tools, software security, threat modelling, Mitre ATT&CK, OWASP, GDPR, automation, software architecture, static analysis, ISO 9001, ISO/IEC27001, DO178-B, CENELEC EN50128, NIST, C/C++, Java, Docker, Jupyter notebooks, SQL

Languages : German (Native), English (Business Fluent), Dutch (Basic)

Soft Skills : Analytical thinking, communication, collaboration, teamwork, leadership, strategic thinking, rapid learning, research methods, empirical research, mining software repositories, ongoing professional development