Ahmad B. Usman

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Summary

PhD candidate in Computer Science (Cybersecurity) at Linköping University, supervised by Mikael Asplund. Research focuses on trustworthy computing, secure software updates, and vulnerability analysis for embedded and IoT systems, with 7+ peer-reviewed publications at IEEE, ACM, and Springer venues. Combines deep research expertise with hands-on industry security experience (CEH, Security+, CCNA Security) and record in teaching, student supervision, and applied security engineering.

Experience

Linköping University - PhD Researcher, Cybersecurity — Dec 2021 - Present, Linköping, Sweden

- Researched on trustworthy computing and secure software updates, yielding 7+ peer-reviewed publications at IEEE, ACM, and Springer venues.
- Designed and implemented security research prototypes for embedded and IoT systems, covering attestation protocols, firmware update mechanisms, and vulnerability analysis.
- Supervised 7 bachelor's and 4+ master's theses on applied cybersecurity topics; served as teaching assistant in Operating Systems, Text Mining, and Bachelor Project courses.

HWG s.r.l - Cyber Security Specialist — Sep 2021 - Nov 2021, Verona, Italy

- Performed security monitoring and threat analysis for enterprise IT environments.

SPRITZ Security and Privacy Research Group - Research Assistant — Sep 2020 - Jul 2021, Padua, Italy

- Investigated security vulnerabilities in Industrial Control Systems (ICS/SCADA), focusing on IT/OT convergence risks and network-level attack surfaces.
- Applied machine learning techniques for anomaly detection and intrusion monitoring in operational technology environments; contributed to experimental evaluation.

Education

PhD in Computer Science - Linköping University (Sweden) — Dec 2021 - ≈ Nov 2026

- Thesis: *Trustworthy Software States:* (working title)

Licentiate in Computer Science - Linköping University (Sweden) — Dec 2021 - Oct 2025

- Teknologie licentiatexame inom ämnesområdet Datalogi: diva2:1997850
- Thesis: *Trustworthy Software States through Attestation and Secure Updates*

MSc. in ICT for Internet and Multimedia - University of Padua (Italy) — Oct 2019 - Jul 2021

- Track of CyberSystems, Dept. of Information Engineering; GPA: 110/110
- Thesis: Industrial Control Systems: Security and Privacy analysis in Industry 4.0 UNIPD

BSc. in Information Technology - University of Science and Technology (Sudan) — Oct 2013 - Sep 2017

- Faculty of Computer Science & Information Technology; GPA: 3.78/4

Skills

Security: Trustworthy Computing, Remote Attestation, Secure Updates, Vulnerability Analysis, ICS/SCADA Security
Programming: C, C++, Python, Java, JavaScript, SQL
Tools & Platforms: Linux, Git, Docker, QEMU, ARM TrustZone, TPM, Wireshark, LaTeX
Languages: English (Fluent), Arabic (Fluent), Swedish (Intermediate)

Certifications

Certified Ethical Hacker (CEH) - EC-Council	Dec 2017
CompTIA Security+ - CompTIA	Sep 2017
CCNA Security - Cisco	Aug 2017
CCNA Routing and Switching - Cisco	Sep 2015

Selected Publications

[7] SUIT: Security of Update-related IoT Traffic — Tbd 2026
- ***A. B. Usman***, E. Süren, and M. Asplund Early draft

[6] Understanding Security Weaknesses in Software and Firmware Updates — Tbd 2026
- ***A. B. Usman*** and M. Asplund Under review, Journal

[5] Bridging remote attestation and secure software updates in embedded systems — Feb 2026
- ***A. B. Usman***, Z. Afzal, and M. Asplund Springer

[4] On the Inconsistency of Update-Related Vulnerabilities — July 2025
- ***A. B. Usman*** Springer

[3] Update at Your Own Risk: Analysis and Recommendations for Update-related Vulnerabilities — May 2025
- ***A. B. Usman*** and M. Asplund Springer

[2] Remote Attestation with Software Updates in Embedded Systems — Oct 2024
- ***A. B. Usman*** and M. Asplund IEEE

[1] Remote Attestation Assurance Arguments for Trusted Execution Environments — Apr 2023
- ***A. B. Usman***, N. Cole, M. Asplund, F. Boeira, C. Vestlund ACM

Teaching & Supervision

Linköping University - Teaching Assistant / Lab Assistant — 2021 - 2026, Linköping, Sweden
- Concurrent Programming and Operating Systems (TDDE68) — 2021-2024
- Computer Engineering - Bachelor Project (TDDD83) — 2022-2026
- Text Mining (732A81) — 2025-2026

Linköping University - Masters / Bachelor Supervision
- Masters (5): diva2:1772753, diva2:1879960 — 2023, 2024
- Bachelor (6): diva2:1681942, diva2:1669983, diva2:1763650, diva2:1883545, diva2:1967210 — 2021-2026

Additional Information

Driving License: Swedish Category B — Nov 2023