

Harrison Sand

SOFTWARE AND APPLICATION SECURITY SPECIALIST | CYBERSECURITY RESEARCHER

Oslo, Norway

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Summary

Harrison is a software and application security specialist with experience in embedded devices and IoT. He has worked closely with penetration testing, incident response, embedded security, and vulnerability management. Throughout his career he has documented a strong dedication to professional development and continued learning, as well as a commitment to help foster the security community through guest lecturers, conference presentations, and mentorship programs.

He has a passion for cybersecurity research and has had work featured in publications such as TechCrunch, PC Magazine, The Register, Ars Technica, Hackaday, Aftenposten, and NRK.

Work Experience

mnemonic AS

SENIOR SECURITY CONSULTANT

Oslo, Norway

Aug. 2015 - Present

Harrison is part of the technical risk services team at mnemonic. He has worked closely with web application security, penetration testing, embedded devices, IoT, mobile security, incident response, vulnerability management and security architecture.

Staples Norway AS

SECURITY ANALYST

Oslo, Norway

Oct. 2014 - Jul. 2015

Harrison worked as a security analyst for Staples Norway, and was responsible for managing a global vulnerability management program.

Presentations, Publications & Projects

BruCON 0x0F - Reverse engineering an EV charger

PRESENTER

Mechelen, Belgium

Sep. 2023

Presented the results of a reverse engineering project that focused on the Zaptec Pro electric vehicle charger.

REFERENCES

- Blog post - <https://www.mnemonic.io/resources/blog/reverse-engineering-an-ev-charger/>
- Presentation - <https://www.youtube.com/watch?v=raZHd1Q4Vrc>

ScapySMS: A Scapy implementation of SMS-SUBMIT and (U)SIM Application Toolkit command packets

DEVELOPER

GitHub

Oct. 2021

Developed a framework designed to assist with fuzzing SIM card applications and SMS systems.

REFERENCES

- Repository - <https://github.com/mnemonic-no/ScapySMS>

Exposing covert surveillance backdoors in children's smartwatches

LEAD INVESTIGATOR

mnemonic.io

Oct. 2020

Revisited previous research in smartwatches, and documented hidden snapshot and wiretapping capabilities in a popular product.

REFERENCES

- Blog Post - <https://www.mnemonic.io/resources/blog/exposing-backdoor-consumer-products/>
- The Register - https://www.theregister.com/2020/10/12/xplora_4_smartwatches/
- Ars Technica - <https://arstechnica.com/information-technology/2020/10/a-watch-designed-exclusively-for-kids-has-an-undocumented-spying-backdoor/>
- NRK - <https://nrkbeta.no/2020/10/13/fant-overvåkingsfunksjoner-i-barneklokke-solgt-av-norsk-selskap/>

Research into the security of GPS watches for children

LEAD INVESTIGATOR

forbrukerradet.no

Oct. 2017

A technical security assessment of four smart GPS watches for children, released in collaboration with the Norwegian Consumer Council. Research also presented at the Norwegian OWASP chapter in March 2018.

REFERENCES

- PC Magazine - <https://www.pcmag.com/news/be-careful-buying-a-smartwatch-for-your-kid>
- TechCrunch - <https://techcrunch.com/2017/10/19/consumer-report-warns-over-safety-of-kids-smartwatches/>
- Aftenposten - <https://www.aftenposten.no/digital/i/0nBMLE/slaar-alarm-etter-sjekk-av-gps-klokker-for-barn>
- Technical Report - <https://storage02.forbrukerradet.no/media/2017/10/watchout-rapport-october-2017.pdf> (begins page 24)

Education

Norwegian University of Science and Technology

PART-TIME INFORMATION SECURITY EXPERIENCE-BASED MASTER'S PROGRAM

Gjøvik, Norway

2024 - Ongoing

University of Maryland

BACHELOR OF SCIENCE, COMPUTER NETWORKS AND SECURITY

Maryland, USA

2014

Extracurricular Activities

Norwegian University of Science and Technology

GUEST LECTURER, HARDWARE SECURITY IN EMBEDDED SYSTEMS (IHK4100)

Held a two day interactive capture-the-flag workshop that taught concepts of embedded security such as disk encryption and secure boot.

Gjøvik, Norway

Fall 2024

Norwegian University of Science and Technology

GUEST LECTURER, SOFTWARE SECURITY (TDT4237)

Introduced concepts for application security testing

Trondheim, Norway

Feb. 2020 - Reoccurring

University of Oslo

GUEST LECTURER, ETHICAL HACKING (IN5290)

Held a lecture on web application security testing based on the OWASP Top 10 list and ASVS standard

Oslo, Norway

Nov. 2018

Staples Inc.

INFORMATION SECURITY INTERNSHIP

Led a proof-of-concept project for a web application firewall implementation

Broomfield, Colorado, USA

Summer 2014

InterContinental Hotels Group (IHG)

INFORMATION SECURITY INTERNSHIP

Worked alongside a malware analysis team. Conducted network traffic analysis, and built custom IDS signatures.

Alpharetta, Georgia, USA

May 2012 - Aug. 2012

Certifications & Licenses

CERTIFICATIONS

- 2019 **Certified Penetration Tester (GPEN)** GIAC License 14000
- 2017 **Mobile Device Security Analyst (GMOB)** GIAC License 943
- 2016 **Web Application Penetration Tester (GWAPT)** GIAC License 5351

LICENSES

- 2016 **Amateur Radio License** Norwegian Communications Authority, LB4VH
- 2016 **Amateur Radio License** Federal Communications Commission, W7OCX

Courses & Conferences

COURSES

- 2022 **SEC660: Advanced Penetration Testing, Exploit Writing, and Ethical Hacking** SANS *SANSFIRE DC*
- 2019 **SEC642: Advanced Web App Penetration Testing, Ethical Hacking, and Exploitation Techniques** SANS *SANSFIRE DC*
- 2018 **Software Exploitation via Hardware Exploitation** Xipiter *Blackhat USA*
- 2017 **SEC575: Mobile Device Security and Ethical Hacking** SANS *SANSFIRE DC*
- 2016 **Advanced Infrastructure Hacking** NotSoSecure *Blackhat USA*
- 2015 **SEC542: Web App Penetration Testing and Ethical Hacking** SANS *SANS Gulf Region*
- 2014 **Qualys Vulnerability Management Training** Qualys Inc. *Amsterdam, NL*

CONFERENCES

2023	BruCON 0x0F	<i>Mechelen, Belgium</i>
2022	SANSFIRE	<i>Washington, D.C.</i>
2019	SANSFIRE	<i>Washington, D.C.</i>
2018	Black Hat USA / DEF CON 26	<i>Las Vegas, Nevada</i>
2017	SANSFIRE	<i>Washington, D.C.</i>
2016	Black Hat USA / DEF CON 24	<i>Las Vegas, Nevada</i>

Awards

2022	1st place, SEC660 CTF SANSFIRE	<i>Washington, D.C.</i>
2022	1st place, Core NetWars Tournament (teams) SANSFIRE	<i>Washington, D.C.</i>
2019	1st place, SEC642 CTF SANSFIRE	<i>Washington, D.C.</i>
2017	1st place, SEC575 CTF SANSFIRE	<i>Washington, D.C.</i>
2017	1st place, Core NetWars Tournament (teams) SANSFIRE	<i>Washington, D.C.</i>