

Jasper Rühl

24.07.1998

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EDUCATION

MSc. Informatics <i>Technical University Munich</i> <i>focus on security and computer architecture</i>	2021 - 2024
BSc. Informatics <i>Technical University Munich</i> <i>Minor: Mathematics</i> <i>Grade: 2.2</i>	2016 - 2020
BSc. Computer Science - Exchange Semester <i>Malaysia Multimedia University, Cyberjaya</i>	2018 - 2019

EXPERIENCE

Working Student <i>Guardsquare</i> part of the AppSweep for iOS development team + developed dependency detection for iOS applications + statically linked libraries are successfully detected + repository of libraries is automatically built and necessary information is extracted	May 2023 - Oct 2023
Working Student <i>Controlware</i> Maintained and extended SOC's <i>TheHive</i> Infrastructure + programmed Importer importing cases from EDR platforms (MS Defender, SentinelOne, Cortex XDR) to TheHive (Python, Bash) + created IntelCaching program that periodically pulls text from a given Wikipage and parses the information for the AutoSOC/MailTextGenerator + revamped MailTextGenerator that uses easily editable text templates and fills them with incident info + created AutoSOC that automatically resolves trivial MS Defender incidents	Mar 2022 - April 2023
Research Assistant <i>Fraunhofer AISEC</i> aided in development of an LLVM based MemSafety tool (still in development) developed PoC's for various anti-ControlFlowIntegrity exploitation techniques (DOP, COOP, LOP)	Jan 2021 - Dec 2021
Student Tutor <i>Chair of IT Security</i> hosted weekly tutorials on the IT Security lecture + presented and taught students about the fundamentals of IT Security + classes ranged from 5-25 students	WS21-22 / WS22-23

PROJECTS

Risotto: A DBT for Weak Memory Models Guided Research C

published at ACM ASPLOS 2023

- improved emulation of x86 `cmpxchg` instruction on ARM architectures
- + introduced a new CAS instruction for QEMUs TCG
- + appropriate ARM instruction is generated
- + dl.acm.org/doi/10.1145/3567955.3567962

Raspberry Pi VPN Endpoint Interdisciplinary Project

SS23

Gürtler & Roach Cybersecurity

- developed program to setup Raspberry Pi microcomputers
- + Pi's are a tailscale exit node
- + Access Control List ensures no outgoing connections from the Pi
- + *Ansible* is used to automatically setup the Pi

Forkever Bachelor Thesis Python, ptrace, C

github.com/haxkor/forkever

- GDB-like debugger for binary exploitation
- + create copies of program-state by injecting `fork` system calls (Python, `ptrace`)
- + memory can be visualised and manipulated with a hexeditor (C, Pthreads, Unix socket)
- + Forkever was used by the students of the binary exploitation lab course

SKILLS

Programming Languages (advanced)

Python, C, C++, Bash

Programming Languages (intermediate)

Java, Haskell, R

Technologies

Linux, Docker, QEMU, git, Ansible, GDB, `ptrace`

Languages

German (native), English (C2), Malay (basic)

PERSONAL

MINGA

2017 - 2020

Mentor for two international students at TUM

English tutor

2013 - 2015

Assisted in teaching pupils