

# Jasper Rühl

24.07.1998

jasperruehl@protonmail  
github.com/haxkor  
linkedin.com/in/jasper-rühl-2650261b9/

## EXPERIENCE

---

### Working Student

May 2023 - Oct 2023

#### *Guardsquare*

- prototyped dependency detection feature for iOS AppSweep Python, C++
- + statically linked libraries are successfully detected
- + each symbol of the IOS app is matched to its origin (native or external library)
- + repository of libraries is automatically built and necessary information is extracted

### Working Student

Mar 2022 - April 2023

#### *Controlware*

- DevOps for SOC teams *TheHive* Infrastructure, creating various tools Python
- + Incident importer for several XDR platforms (MS Defender, SentinelOne, Cortex XDR)
- + IntelCaching that periodically pulls text from a given Wikipage and parses the information for the AutoSOC/MailTextGenerator
- + MailTextGenerator that uses easily editable text templates and fills them with incident info
- + AutoSOC that automatically resolves trivial MS Defender incidents
- + introduced function decorator to make our python programs significantly more fault resilient

### Research Assistant

Jan 2021 - Dec 2021

#### *Fraunhofer AISEC*

- aided in development of an LLVM based MemSafety tool C++, Python
- developed PoC's for anti-ControlFlowIntegrity exploitation techniques (DOP, COOP, LOP)

### Student Tutor

WS21-22 / WS22-23

#### *Chair of IT Security*

- hosted weekly tutorials on the IT Security lecture
- + presented and taught students about the fundamentals of IT Security
- + classes ranged from 5-25 students

## PROJECTS

---

### Congestion Control for Application Flows on Shared QUIC connections Master Thesis

in progress

- explore methods to enable lower latency for realtime communication Go
- + add a stream prioritization mechanism to quic-go

### Risotto: A DBT for Weak Memory Models Guided Research

published at ACM ASPLOS 2023

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

SS20

- GDB-like debugger for binary exploitation Python, C
- + create copies of program-state by injecting `fork` system calls
- + memory can be visualised and manipulated with a hexeditor
- + Forkever is used by the students of the binary exploitation lab course
- + [github.com/haxkor/forkever](https://github.com/haxkor/forkever)

## EDUCATION

---

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

## SKILLS

---

<i>Programming Languages</i>	Python, C, C++, Go, Bash, Java, R
<i>Technologies</i>	git, Linux, Docker, QEMU, Ansible, GDB, ptrace
<i>Languages</i>	German, English, Malay (basic)

## PERSONAL

---

<b>MINGA</b> <i>Mentor for two international students at TUM</i>	2017 - 2020
<b>English tutor</b> <i>Assisted in teaching pupils</i>	2013 - 2015