

# MARIUS FLEISCHER

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## EDUCATION

### Doctor of Philosophy – Computer Science

University of California, Santa Barbara

09/2021 - Present

Santa Barbara, US

- Current GPA: 4.0
- Advisors: [Giovanni Vigna](#), [Christopher Kruegel](#)
- Graduate Teaching Assistant: Computer Security
- Relevant coursework: Runtime Systems, Software Fuzz Testing, Machine Learning, Advanced Topics in Distributed Systems, Special Topics in Deep Learning, Quantitative Information Flow, Machine Learning on Graphs

### Bachelor of Science – Computer Science

Friedrich Alexander-University Erlangen-Nuremberg

10/2017 - 08/2021

Erlangen, Germany

- Graduated with distinction
- Undergraduate Teaching Assistant: Systems Programming, Fundamentals of Computer Engineering
- Related coursework: Data Structures and Algorithms, Systems Programming, Software Reverse Engineering, Computer Forensics, Applied Hacking, Parallel and Functional Programming, Computer Architecture

### Study Abroad

Queensland University of Technology

07/2019 - 01/2020

Brisbane, Australia

- Grades: high distinction

## EXPERIENCE

### Graduate Student Researcher

University of California, Santa Barbara

10/2021 - Present

Santa Barbara, US

### Undergraduate Research Assistant

Friedrich Alexander-University Erlangen-Nuremberg

10/2020 - 08/2021

Erlangen, Germany

## PROJECTS

### Linux Kernel Fuzzing

10/2021 - Present

- Designed and implemented a new kernel fuzzer through targeted kernel instrumentation, custom LLVM pass, modifications to syzkaller
- Discovered and reported 41 bugs in stable and current versions of the Linux kernel, 9 have already been patched

### Speech Style Transfer

Fall 2022

- Developed one-click pipeline for speech style transfer based on SOTA models AutoPST, AutoVC
- Evaluated the model performance on a multi-accent name dataset, live data during a demo presentation

### Fake News Detection

Spring 2022

- Developed an end-to-end data collection pipeline using the Twitter API v1 and v2 that generates a dataset for Graph Neural Network (GNN) models starting from a set of root tweets
- Evaluated the performance of existing GNN models (developed in PyTorch) on multiple social media datasets

### Mobile Device Bootloader Rehosting

03/2021 - 07/2021

- Create a framework for rehosting bootloaders of mobile devices based on avatar<sup>2</sup>, QEMU, Unicorn
- Analyzed the firmware encryption, interactions with the TrustZone Protection Controller on a Huawei P20 Lite using the framework
- Framework was employed by other researchers to analyze additional parts of the secure bootchain

### Fuzzing Trusted Execution Environments

10/2020 - 08/2021

- Developed and implemented a pipeline for type recovery of Secure Monitor Calls on Android smartphones
- Created an Android fuzzing infrastructure for easy deployment and evaluation
- Developed tooling for extracting library dependencies across languages on Android

## ACTIVITIES

FAUST CTF service author

2021, 2022

Decompetition service author

2022

## SKILLS

**Programming:** C, Go, Python, Java, C++, C#, Assembly, Bash, SQL, Scala, R

**Technologies:** Docker, QEMU, Unicorn, PyTorch, Twitter API, Git, Ghidra, GDB/GEF **OS:** Linux, Windows

**Languages:** German (native), English (fluent, TOEFL iBT: 117/120), Hindi (elementary)