



Mario Theuermann

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EDUCATION

UNIVERSITY OF TECHNOLOGY MSc IN SOFTWARE DEVELOPMENT Graz, Austria

MSc degree program:
Software Engineering & Business
Management (F 066 924)
Expected grad. in 2021

BSc IN SOFTWARE DEVELOPMENT Graz, Austria

BSc degree program:
Software Engineering & Business
Management (F 033 524)
Grad. April 2018

WIMO

UNIVERSITY ENTRANCE EXAM
Klagenfurt, Austria
Grad. July 2014

SKILLS

Languages:

C • C++ • Java • Javascript
Python • Kotlin • Swift

Tools:

Git • Svn • z3 • Docker
Sourcetree • Jira • Bitbucket
Spring Boot • RESTful API
various Unix Tools

Libraries / Frameworks:

numpy • sciPy • NEST Simulator
Tensorflow/Keras

Databases:

SQL

Communication:

english (C1-level) • german (native)

WORKING EXPERIENCE

BYTEPOETS GMBH | JUNIOR DEVELOPER

Aug 2018 – Mai 2019 | Graz, Austria

- Acquired expertise in mobile application development on iOS and Android.
- First time working in agile project management methodology style.

IAIK | INTERN

Institute of Applied Information Processing and Communications

Aug 2017 – Oct 2017 | Graz, Austria

- The goal of my internship was to fully encrypt the system memory of a SoC emulation using QEMU.
- Used yocto to create my own linux distribution from scratch.
- Customised linux system for the ARM based Xilinx Zynq7 SoC.

LAM RESEARCH | ELECTRICAL ENGINEER

Sep 2012 – Sept 2014 | Fremont, CA & Villach, Austria

- Gave assistance in assembly of a complete new LAM platform prototype design and electrical environment in pilot clean department in Fremont, California.
- Support engineering activities such as design, test, modification, fabrication and assembly of prototype electro mechanical systems and experimental design circuitry.
- Attendee in feasibility studies and testing on new and modified designs.
- Structured diagnostic and troubleshooting in a wide spectrum of hardware, software and networking needs.

LAM RESEARCH | ELECTRICAL ENGINEER

Oct 2010 – Aug 2012 | Villach, Austria

- Electrical assembly of LAM platforms. Basis was the configuration and documentation (e.g. production schedule, mechanical drawings, wiring diagrams, internal test record).
- Electrical assembly of special customer requests.
- Involved with setting up motion devices and therefore executing software tasks.

SEZ & LAM RESEARCH | TEST ENGINEER

Sep 2006 – Sept 2010 | Villach, Austria

- Basically: acquired the basics for further challenges within this company.
- Worked as temporary worker (different companies for provision of personnel).

SEZ AG | APPRENTICESHIP MECHATRONICS ENGINEER

Sep 2002 – Mar 2006 | Villach, Austria

- Apprenticeship in Mechatronics.
- Combination of electrical, mechanical and computer science skills.
- Graduate with good success.

COURSEWORK

UNDERGRADUATE

Data Structures & Algorithms
Object-oriented Analysis & Design
Software Maintenance
Computational Intelligence
Computer Vision & Graphics
Systems Programming
Operating Systems
Information Security & Networking
Industrial Sociology
Business Administration

POSTGRADUATE

Verification & Testing
Principles of Brain Computation (NN)
General Management and Organization
Security Aspects in Software Development
Industrial Management and Innovation
Web Technology (HTML5)
Change Management
IT Security
Neural Networks
Machine Learning

INTERESTS

PROFESSIONAL

IT-security • cryptography
embedded systems • virtualization
operating systems • different distributions
emulation • various package managers
intelligent systems

PERSONAL

Music:

Expressing my love to music through extravagant and overly priced headphones while actively blocking out the remaining world around me.

Sports and Health

Thanks to my mostly sedentary profession I enjoy keeping my body energetic and dynamic through strength training.

Nature:

Coming straight from a mountain in Carinthia, I get a kick out of fresh air in a quiet and natural environment.

HANDLES

Telegram:// [theuema](#)

Xing:// [xing.to/theuema](#)

LinkedIn:// [at.linkedin.com/in/theuema](#)

Github:// [github.com/theuema](#)

Twitter:// [@mariosellus](#)

RECENT EXPERIENCE

2019/20: IT Security & Security Aspects in Software Development

The main focus of *IT Security* was to implement the TLS protocol with a pre-shared key handshake and Ascon and AES-GCM as authenticated encryption schemes with all its primitives, where we learned the importance of random number generators when generating a cryptographic key as well as basic key management techniques. Our implementation had to provide privacy, data integrity, and authenticity between two communicating parties. Additionally, we implemented our own blockchain based secure crypto currency.

Security Aspects in Software Development gives insights into the ability to recognize and classify bugs, (efficiently) find bugs, exploit bugs, fix bugs, and prevent bugs in the first place. We studied and exploited various memory corruption vulnerabilities including countermeasures, learned how to use different analysis, sanitizers or fuzzing to find bugs and how to prevent these performing defensive programming in C and C++.

2019/20: Machine Learning & Neural Networks

Both lectures, that also included practicals, are part of my major catalog.

In *Machine Learning* we learned about the basic theory of inference and decision, information theory, probability and distributions. We acquired understanding in the field of convex optimization problems, linear models for regression and classification as well as Kernel Methods up to our last assignment that required to implement a Support Vector Machine.

Neural Networks discussed Feed-forward, Convolutional and Recurrent Neural Networks, weight-space symmetries, network training, error backpropagation, various training algorithms and regularization in Neural Networks. We most commonly used Tensorflow and Keras for our assignments.

2018: Principles of Brain Computation

Course contents can be summarized in: Levels of organization in the brain, neurons in biological systems and computation neuroscience. In fact, we used a simulator for spiking neural network models called *NEST*, that focuses on the dynamics, size and structure of neural systems. Principles of plasticity and learning, using different synapse and neural models to develop a recurrent spiking neural network happen to be the main course essentials.

2018: Verification & Testing

In this course we used *Static Analysis* and *Hoare Logic* to find possible bugs in a specific source code. We also had to automate identification of deadlocks running two threads continuously. Heard about BFS & DFS in context of the *Java Path Finder*.

2017 / 2018: BS Thesis

My thesis and practical work is about simulating a modern last level CPU-cache behaviour using QEMU. It will be possible to customize the cache in terms of cache line replacement policy, cache size and timing. The goal is to quickly and efficiently simulate side channel attacks on emulated hardware.

2017: Introduction to Information Security

By taking this course I completed a challenge called *C Security Challenge*. The goal was to exploit pre-written code (C & C++) changing its behavior to get a flag placed in an area that should be protected from not permitted access (CTF).

2017: Distributed Systems

Implemented a distributed system that uses message channels and message queues to perform distributed calculations. Therefore, gained experience in client/server logic, websocket technology and javascript.

2016: Operating Systems

A group-project to realize a small operating system called *SWEB*.

Main parts: Use and implement functions nearly similar to POSIX standard; Implement multi-threading compatibility; Implement memory management;