

MarioTheuermann

Engineering Professional | Software Engineering • Data Science • Teamwork

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📞 +43 - censored - | 📍 Graz/Villach, Austria

SUMMARY

I'm a passionate engineer who enjoys building software systems that integrate and automate data sources. My interests consist of both the technical aspects of software development and the process of extracting meaningful insights from data through statistical and machine learning methods. In addition to developing innovative solutions, I'm eager to improve, extend, and automate processes for existing systems in order to solve problems, elevate code quality, and enhance efficiency. What motivates me is to advance further in software development and engineering practices while also expanding my expertise in data analytics, machine learning, and data visualization. Next to my technical abilities, I'm interested to hone project planning and management skills within collaborative, agile team environments.

With over a decade in the semiconductor industry as a mechatronics engineer and years in diverse roles like software engineer, academic research assistant, and data scientist, I bring a robust background complemented by a Master's degree in Software Engineering and Management from Graz University of Technology. My career includes contributions in academia and industry, emphasizing initiative, meticulous documentation, and the clear communication of complex ideas.

EDUCATION

GRAZ UNIVERSITY OF TECHNOLOGY

📍 Graz, Austria

Diplom-Ingenieur (M.Sc.) in Software Engineering & Management

📅 April 2018 - June 2022

- Grade: Graduated with distinction
- Major: Intelligent Systems | Minor: Management & Strategy
- Thesis: Embedded Image-based Localization For Assessment Of Critical Infrastructure

Bachelor of Science in Software Engineering & Management

📅 Oct 2014 - April 2018

- Thesis: Modeling And Evaluating CPU Caches In Software (QEMU)

COURSEWORK

- M.Sc. degree program:** Knowledge Discovery & Data Mining • Machine Learning • Deep Learning
Security Aspects in Software Development • Verification & Testing
Web Technology • Expert Systems
General Management & Organization • Change Management
The Art of Feedback • Intercultural Social Competence
- B.Sc. degree program:** Data Structures & Algorithms • Statistics & Probability
Linear Algebra & Analysis • Software Maintenance • IT Security & Networking
Operating Systems • Computer Vision & Graphics • Computational Intelligence

SKILLS

- Operating Systems:** 🍏 macOS x86-64/ARM64
🐧 GNU/Linux x86-32/64/ARM64
- Linux Distributions:** Debian • Fedora • RHEL • Arch
- Paradigms & Practices:** Agile (DevOps, XP, Scrum) • Git-flow • OOP • RESTful
- Languages:** C • C++ • Bash • Python • Java • Kotlin • JavaScript • AsciiDoc • \LaTeX
- Databases:** SQL • Couchbase NoSQL
- Libraries & Frameworks:** Pandas • NumPy • SciPy • Scikit-learn • Matplotlib • Seaborn • Plotly
TensorFlow (Keras) • PyTorch • OpenCV • ROS
- Tools:** Docker • VirtualBox • KVM/QEMU • Vagrant • Conda • Pyenv(-virtualenv) • Poetry
Git • Jira • Gitlab CI/CD • Vim • Tmux • POSIX commands and terminal utilities
- Communication:** English (C1/2-level) • German (native)

SKYSPECS

📍 Graz, Austria & Ann Arbor, MI

Data Scientist | Innovation

📅 Oct 2024 - present

- Engineered and deployed a FastAPI-driven Python microservice architecture that delivers RESTful APIs for custom data processing, analytics, and machine learning tasks.
- Developing a machine learning application to detect unusually high rotor blade imbalance in wind turbines by analyzing high-frequency time-series data. Leveraging predictive models such as Random Forest, Gradient Boosting, and Ridge Regression, incorporating feature engineering, and hyperparameter optimization to enhance prediction accuracy.
- Building an LLM-based knowledge base, enabling clients to interact with their specific data analysis results. Currently evaluating low-code solutions, libraries like Langflow, and various vector storage and embedding technologies as part of a comprehensive RAG (Retrieval-Augmented Generation) pipeline.

SKYSPECS

📍 Graz, Austria & Ann Arbor, MI

Data Scientist | Product Improvement

📅 July 2023 - Oct 2024

- Performed data manipulation, analysis, and visualization of large-scale time-series data, including SCADA (Supervisory Control and Data Acquisition) data from individual wind turbines, integrating additional sources such as meteorological data, error logs, and maintenance records. Applied statistical and machine learning methods to classify, cluster, and interpret data, identifying performance anomalies and enhancing operational efficiency. Utilized Python with libraries such as pandas, Matplotlib, Seaborn, Plotly, scikit-learn, NumPy, and SciPy.
- Developed algorithms to address critical challenges in the wind industry, such as production loss assessment, pitch misalignment detection, and performance analysis, ensuring efficiency and applicability for monthly execution across more than 6,000 client wind turbines.
- Introduced processes for coding standards, version control, and documentation, ensuring high-quality, maintainable, and scalable codebases, and facilitating collaboration among team members.

JOANNEUM RESEARCH

📍 Graz, Austria

Research Assistant

📅 Oct 2020 - June 2022

- Engineer computer vision applications to enhance real-time object detection and pose estimation capabilities of a drone, using only single 2D-imagery from its calibrated camera system.
- Construct a robust data acquisition pipeline from a highly accurate infrared-based tracking system, utilizing the Robot Operating System (ROS), to generate a suitable dataset for algorithm development and testing.
- Develop and deploy Docker-based containerized services optimized for NVIDIA Jetson embedded computing platforms.
- Prepare and deliver detailed interim reports and presentations for the FFG (Austrian research funding agency), highlighting project progress, key findings, and strategic recommendations to ensure stakeholder alignment and continued project funding.

Publications:

- Automated Data Annotation for 6-DoF AI-Based Navigation Algorithm Development. *Journal of Imaging* **2021**, 7, 236.
- Protocol Design Issues for Object Density Estimation and Counting in Remote Sensing. *IGARSS* **2021**, pp. 2771-2774.

BYTEPOETS

📍 Graz, Austria

Junior Developer

📅 Aug 2018 - April 2019

- Build and maintain responsive websites and user interfaces using HTML and modern frameworks like Spring and Bootstrap, ensuring scalability, cross-platform compatibility and optimal user experience.
- Design and develop native mobile applications for iOS and Android platforms, focusing on seamless integration and robust functionality.
- Implement RESTful web services interfacing with various databases such as Couchbase NoSQL and SQL, ensuring efficient data retrieval and storage.
- Facilitate continuous integration and continuous delivery (CI/CD) processes using Jenkins, enhancing development workflows and deployment efficiency.
- Employ Agile project management methodologies to streamline project execution and enhance team collaboration and productivity.

IAIK

📍 Graz, Austria

Institute of Applied Information Processing and Communications | Intern

📅 Aug 2017 – Nov 2017

- Develop and optimize a custom Linux distribution tailored for specific applications using the Yocto Project.
- Implement encryption protocols to secure large parts of the system memory in a QEMU emulation environment, aiming to enhance data protection and security.
- Deploy custom Linux distribution images to ARM-based Xilinx Zynq7 Systems on Chip (SoC) and test system operation.

LAM RESEARCH

📍 Villach, Austria & Fremont, CA

Electrical Engineer

📅 Sept 2012 – Sept 2014

- Participate in the electrical assembly and prototyping of novel Lam-platform designs in Fremont, California.
- Support engineering activities such as design, test, modification, fabrication, and assembly of prototype electromechanical systems and experimental design circuitry.
- Conduct structured diagnostics and troubleshoot a broad range of hardware, software, and networking issues, ensuring system integrity and performance.

SEZ & LAM RESEARCH

📍 Villach, Austria

Electrical/Test Engineer

📅 Sep 2006 – Sept 2012

- Perform, evaluate and supervise electrical assembly of SEZ and Lam Research etch platforms as well as special customer requests.
- Contribute improvements to the configuration and documentation of mechanical drawings, wiring diagrams and internal test records.

SEZ

📍 Villach, Austria

Apprenticeship Mechatronics Engineer

📅 Sep 2002 – Mar 2006

- Successful completion of the mechatronics technician apprenticeship.
- Acquire basic electrical, mechanical, and computer science skills.