Mario Theuermann

Engineering Professional | Software Engineering • Data Science • Teamwork

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📱 +43 - censored - | 💳 Graz/Villach, Austria

"Engineering is the practice of learning."

RECENT ROLES

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 Delivery
📅 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.

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 • Searborn • 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)

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 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.