Thomas Mages

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https://github.com/domaschh

PROFESSIONAL EXPERIENCE

Software Engineer and Architect
Fivesquare GmbH 🔗

07/2023 – present
Linz, Austria

I was leading both the architecting and implementation of a document parsing pipeline and a corresponding "AI document chat". My role involved integrating technologies such as Qdrant vector store, Celery, and FastAPI, and making contributions to the deepdoctection framework, enabling efficient processing and embedding of even hard to parse documents like scanned pdfs with structured data like tables inside. At the same time I was part of another architecture team where we had a consulting role for a customer helping them design their SaaS architecture from ground up. This involved doing research on topics like multi cluster kubernetes and constructing detailed ADRs

Instructor for 2146 (Intro Algorithms and Datastructures)
VIENNA UNIVERSITY OF ECONOMICS AND BUSINESS 🔗

09/2022 – 06/2023
Vienna, Austria

I led the practical part of the course and prepared and presented material for students in English and German. During the course, students had to work together on several Java projects and exercises I prepared to reinforce their knowledge in the field further.

Fullstack Software Engineer
Firestart GmbH 🔗

07/2019 – 07/2022
Vienna, Austria

During my time at school, I embarked on an exciting journey as a (part-time) Fullstack Engineer, starting the development of the mentioned BPMN cloud platform. After 4 months I was now involved in the end-to-end development of our innovative Business Process Management (BPMN) cloud platform full-time. From implementing intuitive user interfaces or event-driven microservices, my responsibilities covered all aspects of development. Working closely with cross-functional teams, I contributed to creating a seamless and scalable platform.
Technologies and practices: TDD, C#, Angular, TypeScript, Mongodb, Event-Driven communication, Azure

Software Engineering Internship
Novomatic AG 🔗

07/2018 – 08/2018
Gumpoldskirchen,
Austria

During my internship, I had the incredible opportunity to develop a TV tracking tool for Novomatic using the Rust programming language. It was an exciting challenge to create a robust and efficient solution for monitoring TVs at company fairs.

PROJECTS

Gruenspan
Gruenspan is a full fledged Compiler + Runtime for a subset of the Rust programming language. It is itself fully written in Rust and incorperates both a simple AST interpreter and a Frontend that generates Bytecode and a Runtime which executes the bytecode. It helped me deepen my understanding of compilers greatly. Future improvements like better code generation and other compiler optimizations are in the works.

WASM security
In cooperation with TU I've been working on a static analysis "noninterference" library for WebAssembly Bytecode while reading a lot of papers to get a deeper understanding of the security aspects of Wasm.

Personal website 🔗
While working on my personal website I've experimented with modern web development tools and frameworks such as Astro, MDX, and the new JS runtime Bun. This project is particularly enjoyable as it allows me to incorperate a personal touch and write about the interesting things I have learned over my years as a developer.

Async Rust Web playground
In one of my recent projects, I utilized the Actix web framework to develop a web service trying to get familiar with async rust. Deploying on Google Cloud turned out to be challenging due to the extremely long Docker build times. However, I overcame these hurdles by employing Cargo Chef. The learning experience was great and inspired me to learn even more and look into server-side WASM and projects like Fermyon.

Vaikoon-Spengergasse

My team and I developed an app using a TensorFlow machine learning model for predicting energy prices throughout Europe. The interface allowed users to select specific regions in Europe, view historical energy prices, and visualize predicted price trends over time.

HTL Spengergasse Diplomaproject

I worked in a small team developing a Microsoft Teams integration that helps users find all their important company files and information stored in Sharepoint using Azure Cognitive Service for Language.

EDUCATION

Bsc. Software Engineering	2022 – present
Technical University Vienna (TU Wien) 🔗	

Msc. Software Engineering	2024 – present
Technical University Vienna (TU Wien)	Vienna, Austria

Matura (Honors) — 2015 – 2020, Vienna, Austria

HTL Spengergasse (Software Engineering, bilingual) 🔗

During my time in school, I had the incredible opportunity to participate in an honors program. This program offered students the freedom to work on their own projects and provided specialized guidance and support from teachers. It was an enriching experience that allowed me to explore my interests, and pursue challenging projects, which played a significant role in shaping my academic and personal growth.

INTERESTS

Programming Languages and Compilers — My main interests at the moment are compilers, runtimes and low level security. I do a lot of reading mostly regarding WebAssembly and CPU security.

LANGUAGES

German ● ● ● ● ●
Native

English ● ● ● ● ○
C1