Markus Zeeb

Independent IT Consultant

Personal Details

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Summary

I'm a freelance software developer and IT consultant with over seven years of experience in data engineering, REST API development, natural language processing, and machine learning. I have worked with clients on projects across various sectors, including chemical manufacturing, digital agriculture, social media monitoring, and financial services.

I specialize in the design and implementation of ETL pipelines, REST APIs, web applications for data-centric backends, large-scale data collection solutions, as well as cloud platform management. Among my accomplishments are the creation of software tools and platforms such as a Python framework for managing ML experiments with "little ceremony", and a (AWS Lambda based) REST API that calculates optimal spray rates for herbicide application programs.

I am an expert in Python and Java, with additional skills in JavaScript, SQL, and (Unix) shell scripting (bash/zsh). Additionally, I am interested in functional programming, especially Lisp (Clojure, Racket, or Common Lisp).

I'm experienced with industry standard technologies for data storage and processing like Postgres, MySQL, sqlite, Cassandra, Kafka, Solr, Redis; container management with Docker and Kubernetes; cloud computing using Azure and AWS, and system monitoring solutions such as Grafana, Zabbix or Prometheus.

I also employ a broad range of tools and frameworks, including Ansible, Django, Emacs, Flask, IntelliJ, Jupyter, Linux (Debian, Ubuntu, Fedora) Maven, mlflow, pandas/numpy/polars, pipenv, poetry (Python), Pycharm, Pydantic, React, sklearn, scipy, spaCy and Spring Boot.

My background in computational linguistics has provided me with solid understanding of Natural Language Processing (NLP) and Language Models (LLM).

Work Experience

Freelance Software Developer   *Aug 2020 to now*
@ Markus Zeeb – Softwareentwicklung und Beratung
— Stuttgart

Since mid-2020, I have been working independently as a (self-employed) freelance Software Developer and IT Consultant.

For detailed information about my projects, including tools and technologies, please refer to the "List of Projects" section at the end of this resume.

Software Developer (Data Engineering)   *Dec 2016 to Apr 2020*
@ Vico Research & Consulting GmbH
— Stuttgart

Tasks

- Web Scraping / Web Crawling (online forums, web shops, Social Media platforms).

- Work on ETL pipelines and data warehousing solutions for the data gathered from web crawls and /or various Web / REST APIs

- Developed a REST API + (very simple) web app where customers can "track" products on various websites / web shops.

Tech Stack

Languages:	Java, Python, Javascript, SQL, "shell scripting"
Technologies:	Apache Kafka, Apache Solr, Hibernate, Apache Spark, Kubernetes, Postgres, MySQL, Sqlite,Google Cloud, AWS (EC2, S3), Grafana, Zabbix, Redis, Apache Cassandra, Linux Server (Ubuntu)
Tools & Frameworks:	Spring Boot, Scrapy, Selenium, Flask, numpy / pandas, Intellij, PyCharm, Docker, Jupyter Notebooks

Education

I have a BA in **General Linguistics** from the University of Konstanz (2014 – 2017).

My major fields of study included computational linguistics, syntax and pragmatics as well as Romance Philology (French + Italian).

List of Projects (Freelancing)

Senior Software Engineer   Jun 2023 to Jul 2024
@ BASF SE *(in collaboration with: Skilled GmbH)*
— *Ludwigshafen (remote)*

Tasks

- Creation and implementation of a Python framework ("AIStore SDK") that makes it easy for ML users of all backgrounds to manage data and experiment setups and conduct ML experiments on various BASF (internal) platforms and services in "a few lines of code"

- Development of a REST API platform that makes the functionality of the AIStore SDK accessible from the web

Tech Stack

Languages:	Python, Javascript, SQL
Technologies:	Gitlab (API + Gitlab Runners), Kubernetes, MLFlow, AWS S3, BASF Quriosity
Tools & Frameworks:	Flask, Pydantic, mlflow, numpy / pandas, sklearn

Senior Software Engineer   Aug 2022 to Mar 2023
@ BASF Polyurethanes GmbH *(in collaboration with: Skilled GmbH)*
— *Lemförde (remote)*

Tasks

- Design and implementation of a REST API / platform for conducting near-infrared spectroscopic measurements / experiments

Tech Stack

Languages:	Python, Javascript, SQL, bash
Technologies:	Flask, Pydantic, PyWin32
Tools & Frameworks:	OracleSQL, Sqlite, Contact / Bruker OPUS Lab

Software Developer   Jun 2021 to Jun 2022
@ BASF / Xarvio Digital Farming GmbH *(in collaboration with: Amoria Bond GmbH)*
— *Köln (remote)*

Tasks

- Development of a "data collection tool" (Django + REST API) for agronomical data allowing agronomists to gather and review agronomical data

- Development of a so-called "Threshold function" (AWS-Lambda) that calculates optimal spray rates for herbicide application programs.

- Work on a web app (Flask+React) that served as a web UI for said threshold function (prototype stage)

Tech Stack

Languages:	Python, Javascript, SQL, bash
Technologies:	AWS (Lambda, EC2, S3, EKS/ECR), Terraform, Teamcity, Postgres, sqlite
Tools & Frameworks:	Docker, Django, Flask, Pydantic, numpy / pandas, React

Software Developer (Clojure)   *Apr 2021 to May 2021*
@ Finanz Informatik Solutions Plus GmbH (in collaboration with: Etengo AG)
— *Stuttgart (remote)*

Tasks

- Creation and maintenance of business logic modules used in OSPlus / online banking platforms (Sparkassen, Landesbanken)

- Communication between "client needs" into hard technical specifications for software development teams

- Migration of the "Landesbank BW" website to a new VM

Tech Stack

Languages:	Clojure, Java, shell / bash
Technologies:	OSPlus, DynS, DynPro, Red Hat Enterprise Linux (Server)
Tools & Frameworks:	Spring Boot

Software Coaching (Python)   *Nov 2020 to Nov 2020*
@ Workmation
— *Stuttgart (remote)*

Tasks

- Weekly one-on-one coaching sessions, teaching a junior dev about Python + SWE basics

- Support and guidance for the student during the initial stage of a computer vision / image processing project (Python openCV)

Tech Stack

Languages:	Python
Technologies:	-
Tools & Frameworks:	PyCharm, numpy, pandas, openCV