

AI Engineer & Applied ML Developer

I build AI-powered software from model orchestration and evaluation to APIs, user interfaces, and cloud deployment. My experience spans industrial LLM systems, procurement automation, and machine learning research on large datasets.

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Selected professional experience

Zalion GmbH | Junior AI Engineer Mar - Jul 2026

Multi-agent procurement workflows; LangGraph orchestration, FastAPI services, Next.js interfaces, and AWS deployment.

Siemens Energy | Master’s Thesis, NLP Jul 2025 - Feb 2026

Modular multi-agent framework with persistent state, auditable tool execution, streaming APIs, and human approvals.

Institute for Employment Research (IAB) | Research Assistant Nov 2024 - Feb 2026

Positive-unlabeled learning and job-offer ranking; feature engineering pipelines for more than 90 million records.

BASF | Data Consultant Intern Apr - Jul 2025

Data validation AI agent and internal digital tools supporting business workflows.

What I work with

Python

LangGraph / LangChain

FastAPI

LLM applications

RAG

PyTorch

Scikit-learn

PostgreSQL

Next.js

Docker

AWS

CI/CD

Education

M.Sc. Data Science | FAU Erlangen-Nürnberg

B.C.A. | Guru Gobind Singh Indraprastha University

Enterprise AI engineering

01 Modular Multi-Agent Framework

Siemens Energy · Master's thesis / industrial NLP

LangGraph

LangChain

FastAPI

PostgreSQL

Docker

PROBLEM

Industrial assistants need more than chat: multi-step tool use, persistent execution state, operator control, and traceability.

MY CONTRIBUTION

Designed separation between orchestration, agent execution, tools, and memory. Built FastAPI endpoints with streaming and OpenAI-compatible interfaces; added PostgreSQL checkpointing, audit trails, and human-in-the-loop approvals for external actions.

APPLIED USE CASES

Methanol factory assistant for engineering requirements and reports; terminal management assistant for log analysis, diagnostic summaries, and email drafts.

02 Multi-Agent Procurement Platform

Zalion GmbH · Professional engineering work

LangGraph

FastAPI

Next.js

AWS EC2

CI/CD

CONTEXT

Procurement-focused software requiring specialized AI interactions embedded within business workflows.

MY CONTRIBUTION

Integrated specialized agent endpoints and orchestration logic; developed backend APIs and front-end components; improved agent prompts and validation reliability; contributed to containerized deployment and automated delivery pipelines.

03 Data Validation AI Agent

BASF · Internal business tooling

Generative AI

Data quality

Python

Analytics

MY CONTRIBUTION

Built an agent for structured-data checks, configurable validation tests, quality scores, and readable validation reports for internal users.

Machine learning at scale

04 Labor Market Intelligence

Institute for Employment Research (IAB) · Applied research

XGBoost

Random Forest

SVM

PU Learning

Feature Engineering

PROBLEM

Rank job opportunities from large, imbalanced datasets where reliable positive and negative labels are difficult to obtain.

MY CONTRIBUTION

Developed preprocessing and feature engineering pipelines spanning 90M+ records. Explored positive-unlabeled learning (including Elkan & Noto), tree-based models, and ranking-oriented experiments for decision support.

Independent software products

05 Lattice Lab

Visual multi-model AI workspace · Independent project

React Flow

Next.js

PostgreSQL / JSONB

Model APIs

Streaming

BUILT

A node-based interface for comparing AI model responses side-by-side and constructing non-linear workflows by branching and merging context.

ENGINEERING DEPTH

Parallel model requests, response streaming, canvas serialization, authenticated workspaces, and persisted conversation graphs. Also implemented workspace collaboration and configurable viewing/editing access.

lattice-lab.com

06 Air Lune

Multiplayer focus environment · Independent project

Next.js

FastAPI

PostGIS

Redis

LiveKit

MapLibre

BUILT

A shared work session in which participants focus together as a virtual aircraft travels between real places.

ENGINEERING DEPTH

Real-time presence, shared tasks, text and voice communication, persistent sessions, and interactive geospatial mapping. Demonstrates distributed state and collaborative product engineering beyond LLM applications.

airlune.space

Additional selected projects

07 whenyouopen.me

Encrypted, scheduled digital message capsules

[FastAPI](#)[AWS S3](#)[Docker](#)[Nginx](#)[Encryption](#)

BUILT

A deployed application for scheduling private messages and file attachments for future release, with password-based encryption, access controls, and cloud object storage.

whenyouopen.me

08 Multi-Agent Project Generator

Autonomous software project generation

[LangGraph](#)[Gemini](#)[Pydantic](#)[Python](#)

BUILT

A planner-architect-coder workflow that translates natural-language requirements into project structures and generated code, using typed agent handoffs and sandboxed file operations.

github.com/rebel47/Multi-Agent-Project-Generator

09 Ilmora

Offline LLM inference for Android

[Flutter](#)[llama.cpp](#)[Android NDK](#)[CMake](#)

BUILT

An on-device LLM application using native inference bindings, quantization-aware runtime handling, local conversation storage, and token-budgeted prompting.

10 GPT-2 Poetry Fine-Tuning

Independent model-training experiment

[PyTorch](#)[Hugging Face](#)[GPT-2](#)[Policy Gradients](#)

BUILT

Fine-tuned a GPT-2 language model for poetry generation using custom reward functions for rhyme and stylistic coherence. Published model on Hugging Face; the CV reports 3,600+ downloads.

huggingface.co/ayazfau/GPT2-124M-poetry-RL

Contact

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