



Brook Balkachew Nigatu

Fullstack Software Engineer

I bring strong CS fundamentals along with some professional experience. I am a quick learner and persistent problem-solver with great communication skills. I speak fluent English and I'm constantly improving my German (currently B1).

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EDUCATION

M.Sc. Computer Science and Software Engineering

Constructor University Bremen

09/2024 - 06/2026

Bremen, Germany

B.Sc. Mathematics and Computer Science

École Polytechnique

09/2021 - 06/2024

Palaiseau, France

WORK EXPERIENCE

Software Engineering Intern

CHECK24 Vergleichsportal GmbH

08/2025 - 09/2025

Munich, Germany

Highlights

- Developed and maintained a backend service using **Java with Spring Boot** for aggregating and summarizing customer feedback using LLMs.
- Integrated generated summaries into the website UI (**Angular and React**).
- Collaborated with the team in an **agile environment** using standard Git practices.
- **Key Technologies: Java, Spring Boot, React, Angular, Git, Docker, MongoDB, Jenkins, Microservices.**

LLM Security Intern

Constructor Tech

04/2025 - 06/2025

Bremen, Germany

Highlights

- Studied LLM internals to explore security methods.
- Instrumented codebases of NanoGPT and BitNet.
- Experimented with various libraries for homomorphic encryption to enable secure training and inference in 1bit LLMs.
- **Key Technologies: Python, BitNet, NanoGPT.**

Operations Research Intern (Bachelor Thesis Internship)

Laboratoire d'Informatique de l'École Polytechnique

01/2024 - 03/2024

Palaiseau, France

Highlights

- Implemented a customized version of the **Feasibility Pump algorithm** to find solutions for large-scale **Mixed-Integer Linear Programs**.
- Tested the algorithm against known benchmarks to compare its performance with other heuristics.
- **Key Technologies: Python, Gurobi Optimizer.**

SKILLS

Java C++ C# Python HTML/CSS/JavaScript

TypeScript Tailwind Spring Boot Angular

React Astro Docker Git Langchain

MongoDB PostgreSQL RAG NLP

PROJECTS

WCPS Executable Test Suite (Master Thesis) [↗](#)

- Designed and implemented an **open-source compliance test suite** for a standardized query language used in the geospatial domain.
- Analyzed the language grammar and specification, and identified points of improvement.
- Tools used: Java, TestNG, TEAM Engine, XPath, CTL (Conformance Testing Language)

Talent Scout Desk [↗](#)

- **Winning project for a BMW organized hackathon.**
- Gemini-powered HR tool for hiring decisions based on free-text role descriptions.
- Tools used: Python, Lovable, PostgreSQL, RAG, Gemini-API.

SimCarma [↗](#)

- A web-based platform for assessing soft skills of job candidates via interactive games.
- Worked on both the frontend (**Vue.js**) and backend (**Flask**).
- Implemented the **CI/CD pipeline** with **GitHub Actions** and set up frontend deployment on **Netlify** and backend deployment on **Render**.
- Tools used: Vue.js, Flask, PostgreSQL, GitHub Actions, Netlify, Render.

PaperProbe [↗](#)

- A terminal-based tool to automatically generate python scripts demonstrating usage of scientific libraries.
- Used **pymupdf** to extract github links from scientific papers in pdf format.
- Created an **LLM-based agent** to go through repositories, understand them and generate example scripts.
- Tools used: Python, Langgraph.

Rwamed Website [↗](#)

- Designed and built a website for a **real pharmaceutical trading company** (Rwamed).
- Tools used: Astro, Tailwind CSS, Cloudflare Pages.

Natural Language Processing (NLP) on r/Futurology [↗](#)

- Used a **topic detection algorithm** based on **Latent Dirichlet Allocation (LDA)** to identify prominent themes in user posts and comments.
- Used **sentiment analysis** techniques to extract overall sentiment towards each identified topic.
- Tools used: Python, PRAW, R, tidytext (R package), tidyvader, spacyR.

LANGUAGES

English
Full Professional Proficiency

German (B1)
Intermediate Proficiency