



AVI DHINGRA

Software Engineer | Python/C++ | Applied AI & Embedded Systems

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Darmstadt, Germany

in avi-dhingra

SPECIALIZATION

Backend Software Engineering

Python/C++ Engineering

Applied AI Systems

Embedded & Constrained Systems

API-backed Workflows

Testing & Reliability

Technical Root-Cause Analysis

CORE STACK

Python Rust C/C++ Bash

MATLAB SQL TensorFlow

RAG Vector Search Qdrant

LangChain LangGraph

Local LLMs RAG Workflows

Linux Docker Perforce

GitLab Jira Jenkins

ENGINEERING CONTEXT

Embedded Computing

Resource-Constrained Systems

Connected Systems

Engineering Data

Diagnostic Systems

Production Software

RF / IoT Systems

Cybersecurity Review

AI-assisted Tooling

CERTIFICATIONS

- Google AI Professional Certificate
- Machine Learning Specialization
- Deeplearning.AI: Agentic AI

LANGUAGES

English: **Fluent**

German: **A2 / Elementary**

Hindi: **Fluent / Native**

PROFILE

Software Engineer with 2+ years of experience across Python/C++ development, embedded connectivity software, applied AI tooling, and diagnostic systems for complex engineering domains. Currently developing internal software tools including a RAG-based log analysis platform and an LLM-powered adaptive website application, combining structured data processing, API-backed workflows, retrieval-augmented generation, local LLM workflows, validation, and evaluation. Background includes Linux-based development, production C/C++ maintenance, cross-functional defect investigation, code reviews, cybersecurity/CVE assessment, and a TensorFlow/DQN thesis using real-world wireless sensor data.

EXPERIENCE

Embedded Software Developer | Comlet Verteilte Systeme GmbH

Client project: e.solutions / VW Group multimedia connectivity domain

Dec 2023 - Present

Darmstadt, Germany

- Maintain production embedded connectivity software through C/C++ bug fixes, validation support, code reviews, and cybersecurity/CVE assessment for third-party ECU software components.
- Investigate test- and customer-reported connectivity defects across Bluetooth, WLAN, eCall, networking, and smartphone projection topics using diagnostic evidence, reproduction reports, CAN traces, Wireshark captures, and ECU debug data.
- Designed and implemented the **RAG-Based Automotive LogAnalyser**, an internal AI-assisted platform that transforms deterministic log-analysis outputs, event summaries, and engineering-domain knowledge into searchable context for LLM-supported troubleshooting.
- Built Python-based ingestion, retrieval, reporting, chat-query, and evaluation workflows using Qdrant, LangChain/LangGraph, FastAPI-style APIs, Docker, and CI-supported engineering practices.
- Developed an **LLM-Powered Adaptive Website Application** that converts user prompts into tailored website sections using requirement abstraction, capability matching, multilingual generation, validation, and fallback workflows.
- Collaborate with software, test, and domain stakeholders to translate complex technical problems into structured diagnostic workflows, collect feedback, and convert findings into actionable next steps.

Internship | Robert Bosch GmbH

RF R&D / Digital Vehicle Access - Perfectly Keyless / BLE-UWB systems

Jun 2021 - Dec 2021

Stuttgart, Germany

- Supported R&D for BLE/UWB digital vehicle access systems through RF evaluation, antenna behavior analysis, S-parameter investigations, and measurement-based performance studies.
- Developed MATLAB and Python scripts to calculate, simulate, and visualize antenna/HF measurement data; worked with RF measurement equipment and supported research into improving antenna coverage under challenging signal conditions.

Embedded Systems Trainee | NetLegends

Aug 2017 - Sep 2018

Bhopal, India

- Developed firmware, system architecture, and PCB designs for IoT monitoring and automation systems using C/C++, Atmega328, ESP8266/ESP32, STM/ARM boards, sensors, and SIM800L.
- Contributed to a government-oriented 3-phase pump monitoring system for supply/current monitoring, microcontroller-based data processing, and remote status transmission.

EDUCATION

M.Sc. Information and Communication Engineering

Technische Universität Darmstadt

Oct 2018 - May 2023

Darmstadt, Germany

- Thesis: *Machine Learning based Data Rate Optimization for Mobile LoRaWAN Sensors* - implemented a TensorFlow DQN-based approach trained on real-world mobile LoRaWAN data to optimize data-rate selection and improve communication reliability.

B.E. Electronics and Communications Engineering

Oriental Institute of Science & Technology

2013 - 2017

Bhopal, India