

NABEEL NASIR

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Personal Statement

*I am an electrical engineer with proven leadership and technical proficiency in electrical and software engineering - experienced with **Simulink, ETAP and MATLAB** - and skilled in **Python, NLP, AI, machine learning, image processing, and deep learning**. I seek opportunities to apply these skills and advance my expertise.*

Profile Highlights

- Software engineer specialized in **Python, AI/ML, Generative AI, NLP, deep learning, and image processing**—building end-to-end intelligent systems.
- **Head of Design Engineering** for FootSol – DHA Phase IX, Sector C: secured all approvals and led full system design.
- Embedded systems specialist at BemSol: optimized firmware (–30% memory), developed drivers, and cut hardware validation time by 40%.
- AI-driven solutions architect: delivered **Machador LLM UI (10 k DAU)**, **Artifact fraud-detection pipeline**, **DealsBazaar machine learning recommender**, and **Casus tax-lawyer RAG system**.

Experience

Lead Software Engineer, WeAreCasus — France (Remote) **Mar 2024 – Present**

- Trained a tax-lawyer dataset of **75,000+ fragments** using RAG and chain-of-thought, increasing answer accuracy by 35%.
- Architected and deployed solutions with **Python/Django, Next.js, DynamoDB, AWS, and OpenAI**.
- Developed Startup Manager to generate pitch decks that cover idea, prototype, and business stages for B2B/B2C clients.

Senior Software Engineer, codSeed — Australia (Remote) **Apr 2023 – Mar 2024**

- Single-handedly delivered and maintained **Machador (LLM, Generative AI UI)** at 10k DAU.
- Built Artifact paint-auction platform with **image-processing fraud detection and prompt engineering**.
- Developed DealsBazaar recommendation engine using user behavior **NLP and machine learning**.
- Engineered OrderFest order management system, leveraging **Hugging Face** for AI-driven SQL queries.

Embedded Engineer, BemSol — Lahore, Pakistan **June 2022 – Feb 2023**

- Optimized embedded firmware, reducing memory footprint by 30%.
- Developed low-level drivers for sensors and actuators, improving system reliability.
- Created diagnostic tools to automate hardware testing, cutting validation time by 40%.
- Collaborated on PCB prototyping and integrated firmware with production hardware.

Automation Intern, Welknit Textiles — Lahore, Pakistan **Sep 2021 – Mar 2022**

- Automated PLC programming for One-T machines, increasing throughput by 25%.
- Debugged and deployed control logic across multiple production lines.
- Documented SOPs for PLC-based automation systems.

R&D Intern, Transfopower Industries (PVT) Ltd — Lahore, Pakistan **June 2021 – Sep 2021**

- Supported R&D initiatives by conducting material and process evaluations.
- Assisted in Quality Control & Assurance, reducing defect rates by 15%.
- Coordinated production scheduling and distribution logistics across three shifts.

Education

AtomCamp - Islamabad, Data Science & AI Bootcamp

Feb 2023 – Oct 2023

- **Coursework:** Python, Machine Learning, Deep Learning, Computer Vision, NLP, LLMs and MLOps

COMSATS University Lahore Campus, Bachelor of Science – Electronics and Electrical Engineering

Sept 2018 – Sept 2022

- **Coursework:** Control Systems, Power Electronics, Electromagnetic Theory, Signals and Systems, Digital Signal Processing, Industrial Electronics, Microprocessor Systems and Interfacing

Forman Christian College, Pre-Engineering

Sept 2015 – Oct 2017

- **Majors:** Mathematics and Science

Technologies

Programming Languages: Python, JavaScript, TypeScript, C, AWS, MATLAB, SQL, MongoDB, DynamoDB

AI & ML Expertise: Generative AI, LLMs, NLP, deep learning, prompt engineering, data analysis, image processing

Libraries & Frameworks: TensorFlow, PyTorch, Hugging Face Transformers, scikit-learn, Pandas, NumPy, OpenCV

Tools & Simulation: MATLAB/Simulink, AutoCAD, ETAP

Embedded & Hardware: Microcontrollers (Raspberry Pi, STM32), Sensors (Thermal, IR, Gas), PID Controllers

Academic Projects

FYP: IoT-Based Smart Operation & Maintenance System

August - 2022

- Architected an end-to-end IoT platform for real-time equipment monitoring and alerting using MQTT and cloud services.
- Implemented predictive maintenance algorithms in Python to analyze vibration and temperature data, reducing unplanned downtime.
- Developed a React/Flask dashboard to visualize system health, trigger notifications, and manage maintenance schedules.

Smart Farming Weeding Robot (Assist)

June - 2022

- Collaborated on end-to-end system architecture—STM32-based data acquisition, wireless telemetry, and actuator control firmware.
- Conducted field validation, demonstrating a significant reduction in manual weeding labor while maintaining optimal plant health and yield.
- Developed Python/OpenCV pipelines and trained a lightweight CNN model for in-field weed classification, achieving high detection accuracy in prototype trials.

Food Spoilage Detection System (Assist)

March - 2022

- Designed a gas-sensor array (ethylene, ammonia) interfaced with Arduino for spoilage monitoring.
- Trained and evaluated SVM and Random Forest classifiers in scikit-learn, achieving over 90
- Built a PyQt GUI to display real-time spoilage alerts and historical trends.

Smart Hydroponics System

September - 2021

- Integrated CO₂ and ethylene sensors with a microcontroller to monitor plant environment.
- Implemented PID control in MATLAB/Simulink to automate nutrient delivery and maintain optimal growing conditions.
- Created a MATLAB dashboard for real-time data visualization and system tuning.

Obstacle Avoiding & Line Following Robot

June - 2021

- Developed an autonomous differential-drive robot with ultrasonic sensors for obstacle avoidance.
- Implemented an IR-based line-following algorithm in C/C++, achieving >95
- Tuned real-time control loops to ensure smooth navigation at varying speeds.

IoT Projects: Smart Parking, PLC Automation & RC-Plane Telemetry

March - 2021

- Designed a smart parking solution using RFID and ultrasonic sensors, with a mobile app for spot availability.
- Automated production lines using PLC (Siemens S7), developing ladder logic to control conveyors and One-T machines.
- Built an RC-plane telemetry system with 2.4 GHz RF modules to stream flight data (altitude, speed) to a ground-station dashboard.

Professionsl Projects

Machador (Generative AI UI) — codSeed

April 2023 – March 2024

- Designed and implemented a React-based LLM UI handling 10 k DAU with real-time streaming responses.
- Integrated and fine-tuned OpenAI models for interactive Q&A and dynamic content generation.
- Tools Used: Next.js, React, Tailwind CSS, OpenAI API, WebSockets.

Artifact (Paint Auction Platform) — codSeed

April 2023 – March 2024

- Built an image-processing pipeline to detect fraudulent auction images with > 95
- Developed prompt engineering workflows to maximize LLM efficacy in user-facing descriptions and tags.
- Tools Used: Python, OpenCV, PyTorch, Hugging Face Transformers.

DealsBazaar (Product Recommendation Engine) — codSeed

April 2023 – March 2024

- Engineered an NLP-driven recommender using user behavior and purchase history, boosting click-through by 30
- Designed vector embeddings and similarity scoring for real-time product matching.
- Tools Used: Python, scikit-learn, Faiss, Pandas, FastAPI.

OrderFest (AI-Powered Order Management) — codSeed

April 2023 – March 2024

- Developed an AI interface with Hugging Face to generate SQL queries from natural-language prompts.
- Automated order processing workflows, reducing manual effort by 50
- Tools Used: Python, SQL, Hugging Face Transformers, Flask.

Tax-Lawyer RAG System — Casus

March 2024 – Present

- Trained a RAG pipeline on 75 000+ legal text chunks, improving answer relevance by 35
- Integrated DynamoDB and AWS Lambda for scalable retrieval and inference.
- Tools Used: Python, Django, Pinecone, OpenAI, AWS.

Startup Manager (Pitch-Deck Generator) — Casus

March 2024 – Present

- Built an end-to-end flow to generate investor-ready pitch decks from minimal user input.
- Implemented stage-based content modules for idea validation, prototyping, and business modeling.
- Tools Used: Next.js, React, Python, OpenAI, AWS S3.