

Amaan Nizam

Mechatronics Student (B.Eng.) · Robotics, AI & Digitalisation

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PROFILE

Mechatronics student at THWS (4th semester) and current student assistant at the Center for Robotics (CERI), working across robotics, applied AI, and digitalisation, the exact themes of the TTZ Kitzingen. Builds real, deployed systems end to end: autonomous UAV avionics, ML on live sensor data, agentic AI, and full-stack applications. Founder (1st Prize, Campus Startup Day). Strong bias toward applied, industry-facing work that moves from concept to working product.

TECHNICAL SKILLS

Robotics & Autonomy: UAV avionics (ArduPilot Plane, MAVLink/pymavlink, Mission Planner, QGroundControl, SITL), multi-sensor integration (GPS, IMU, airspeed), ESC/servo mapping, bench-to-flight validation, control-loop fundamentals.

AI & ML: Python ML, BERT/GPT-4 fine-tuning, LLM API integration, agentic systems (tool-using agents), RAG / vector databases (pgvector), data-pipeline automation, ML on live telemetry/time-series.

Digitalisation & Software: Full-stack (FastAPI, Next.js, PostgreSQL, Docker), multi-tenant SaaS, REST APIs, dashboards (Power BI, Looker Studio), workflow automation (n8n); C++ (embedded), MATLAB, Git, Linux.

Embedded & CAD: Arduino, Raspberry Pi, AD/DA acquisition, stepper/CNC control, power/signal architecture, sensor DAQ; Fusion 360, Creo, tolerancing, 3D printing.

Languages: English (C2); German (B1, improving); Hindi/Urdu (native); Arabic (basic).

SELECTED PROJECTS

2025 – Present

TriFlight: Fixed-Wing UAV Avionics (Dean Approved)

github.com/amaannizam29/triflight-avionics-research

- Redesigned the full power/signal architecture of a long-endurance fixed-wing UAV with failure-mode analysis; selected FC/GPS/airspeed/telemetry hardware via a six-criterion trade study; wrote a SITL-verified Python MAVLink telemetry logger and a 9-requirement, 8-test bench protocol; custom Fusion 360 integration hardware; 21-section report.

2026

UAV Predictive Failure Detection: ML on Live Telemetry

github.com/amaannizam29/uav-failure-detection

- Built a multi-fault ML system detecting battery, GPS, compass, and motor faults from live MAVLink telemetry, paired with a safety-aware operator console and live command-out so a fault is caught before it becomes a crash; the intelligence layer on top of the TriFlight avionics.

2026

DroneHealth: Predictive-Maintenance SaaS (Live)

dronehealth.vercel.app

- Built and deployed a multi-tenant full-stack SaaS for drone-fleet predictive maintenance: health scoring, RUL prediction, live OpenStreetMap ops view, Three.js digital twin, MAVLink connector; org-scoped multi-tenancy at every layer. Built on an honesty principle, features needing real data return explicit status rather than fabricated numbers.

May 2026 – Present

AllyLens OS: Applied-AI Platform (Award)

Science Equality Award 2026 · allylens.netlify.app

- Real-time behavioural-analytics platform: quantitative meeting metrics (interruptions, speaking balance) across 19 lenses, live transcription with speaker diarization, LLM-driven guidance; fully client-side and GDPR-compliant.

2025 – 2026

JarvisOS: Self-Hosted Agentic AI System

github.com/amaannizam29/jarvis

- Docker-deployed AI system: 28-tool reasoning agent, multi-provider LLM routing (NVIDIA NIM / Groq / OpenAI / Gemini), pgvector + knowledge-graph memory, voice pipeline, automated reporting, and a PC-control agent with authority gating.

FURTHER PROJECTS

- Jun 2025 – Present **FluxTation: IoT Power-Bank Kiosks (Founder)**
1st Prize Campus Startup Day · FLIGHT Accelerator 2026 · fluxtation.com
- IoT-enabled, modular, repairable power-bank rental kiosks (RFID locking, 3D-printed enclosures, optional solar); built pricing and business model and led prototyping; pilot approved at a German university.
- Mar 2026 – Present **Modular IR Spectroscopy System: Mechanical Lead**
THWS Physics Dept. · Dr. Tim Kosłowski
- Fusion 360 modular cuvette-holder system (four path-length inserts, adjustable tilt base) and universal beam-splitter docking; contributing to Raspberry Pi / AD-DA acquisition, Woodpecker CNC stepper control, and Python detector readout with calibration.
- Feb 2025 **AI Disease Prediction System (Open Source)**
github.com/amaannizam29/AI-Disease-Prediction-System
- Hybrid locally fine-tuned BERT + GPT-4 platform with a retraining pipeline for continual learning; systematically evaluated and released open-source.
- Jan 2025 **Arduino Traffic-Light Controller**
github.com/amaannizam29/Germany-Traffic-Light-System
- German-style smart controller with pedestrian and sensor-based modes; complete electrical wiring and control logic (Arduino, C++).

EXPERIENCE & LEADERSHIP

- May 2026 – Present **Student Assistant, Center for Robotics (CERI), THWS**
GeNeSiS Initiative
- Support robotics, innovation, and student-founder ecosystem projects across both THWS campuses.
- May 2025 – Present **President, DEGIS Nuremberg-Erlangen Chapter**
- Lead a chapter of Germany's largest international student network; strategy, events, partnerships, cross-functional teams.
- Aug 2025 – Present **Steering Committee, THWS Model United Nations**
- Marketing, operations, and faculty liaison for a multi-day conference.
- Jun 2025 – Present **Blogger, DAAD Study in Germany**
- SEO-optimised articles and social content for an international audience.
- May 2025 – Oct 2025 **Digital Media Intern, Absolute Factor (Remote)**
- Content, research, and analytics reporting across client projects.

EDUCATION

- Oct 2024 – Feb 2028 **B.Eng. Mechatronics, THWS (Würzburg-Schweinfurt)**
4th semester · Specialisations: Robotics & Production; Applied Machine Learning & Design of Experiments
- Oct 2023 – Aug 2024 **Studienkolleg (Engineering), Berlin International College**
Passed all subjects

AWARDS, CERTIFICATIONS & RECOGNITION

Awards: 1st Prize THWS Campus Startup Day 2025; FLIGHT Accelerator 2026; STIBET I Scholarship (DAAD 2025); selected Q-Summit 2026; Science Equality Award 2026 (AllyLens); 2nd Prize Cyber Breaches Research Paper 2020.

Certifications: IELTS 8.0; Ethical Hacking & Quantum Computing Basics (IIT Delhi TRYST); Published author, "Be Cyber Safe" (2021).

Schweinfurt, 01.07.2026

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