

Abdullah Elsayed

Personal Website | [GitHub](#) | [LinkedIn](#)

Software engineer and MEng graduate with experience building production AI systems, compiler-backed developer tools, and academic projects in machine learning and robotics. Work includes large-scale voice AI, full-stack platforms, programming-language implementation, code analysis, and experimental evaluation.

EDUCATION

MEng in Computer Science and Software Engineering

Sep 2019 - Jun 2023

University of Birmingham, Birmingham, UK — **First-Class Honours** | GPA: 4.25 (overall weighted mark: 75)

Master's Dissertation: Thoth: DSL for Multitier Web Development (78%) | **Supervisor:** Dr. Vincent Rahli

Selected Modules: Functional Programming (96) | Computer Vision and Imaging (84) | Evolutionary Computation (84) | Human-Computer Interaction (Extended) (80) | Programming Language Principles, Design, and Implementation (Extended) (79) | Intelligent Robotics (76) | Machine Learning and Intelligent Data Analysis (71) | Neural Computation (68)

AWARDS

- **University of Birmingham International Outstanding Achievement Scholarship.**
- **Computer Science School International Excellence Scholarship** (awarded annually for 4 years).

SELECTED PROJECTS

Weldr [weldr-ai/weldr-old](#)

May 2024 - Jan 2026

Chat-native AI coding environment that generated full-stack applications while maintaining a queryable semantic model and version history of each codebase. Part of UoB Elevate, the University of Birmingham's startup incubator.

- Designed Weldr's branch-and-version system around isolated branch state and immutable snapshots, enabling project forks, version timelines, and restoration.
- Built incremental TypeScript/JavaScript analysis that extracted declarations and dependencies into a queryable semantic graph for each snapshot.
- Integrated the graph with agent code search and dependency queries, and surfaced pages, endpoints, and models on a React Flow architecture canvas.

Thoth: Multitier Web DSL & Compiler [abdufelsayed/thoth](#)

Sep 2022 - Mar 2023

First-Class MEng dissertation on a standalone multitier web DSL with an OCaml compiler that generates readable, independently editable React, Node, and Prisma projects.

- Designed a multitier DSL unifying database models, typed server queries, client interfaces, authentication, and permissions.
- Implemented the OCaml compiler with parsing, cross-tier checks, tier-specific IRs, and database/server/client code generation.
- Evaluated three applications with 9 participants; Todo and Chatroom used about 15% of reference Node/React LOC, with five participants correctly explaining every snippet.

Coverage Planning Comparison [abdufelsayed/ros-coverage-planning-comparison](#)

Dec 2021

Intelligent Robotics group coursework comparing coverage-planning techniques in the ROS Stage simulator.

- Initiated the ROS planning package and contributed closed-loop motion and laser-based obstacle detection for spiral, zigzag, and backtracking planners.
- Co-authored the four-map comparison: backtracking averaged 65.9% coverage, while spiral led in coverage per reported distance.

U-Net for Cardiac MRI Segmentation [abdufelsayed/unet-cardiac-segmentation](#) Nov 2021
Neural Computation coursework on four-class cardiac MRI segmentation using the ACDC dataset.

- Implemented and tuned a four-level PyTorch U-Net with batch-normalised convolution blocks, transposed upsampling, and skip connections.
- Compared U-Net with FCN-8: 0.87-0.90 versus 0.44-0.50 validation Dice; the selected U-Net scored 0.888 (18/45 teams) on the private leaderboard.

Monte Carlo Localisation [abdufelsayed/ros-particle-filter-localisation](#) Oct 2021
Intelligent Robotics group coursework on particle-filter localisation in ROS, evaluated against AMCL.

- Implemented a ROS particle-filter localiser with CDF resampling, injected random hypotheses, and nearest-neighbour pose estimation.
- Contributed to the team's later system with systematic resampling, adaptive recovery, and K-means pose estimation; co-authored the qualitative AMCL comparison.

INDUSTRY EXPERIENCE

Founding Engineer, Aim AI Jan 2024 - Apr 2026
United States (Remote)

- Helped scale Aim's voice-agent platform from pre-revenue to about \$8M ARR and 1M daily calls by building the dashboard and production voice-agent runtime.
- Designed and implemented the Python/FastAPI runtime for live SIP/WebSocket calls, coordinating streaming STT, LLM, and TTS services while handling interruptions and call transfers.
- Led development of Aim's Next.js dashboard, where customers configured agents, launched campaigns, reviewed calls, and monitored performance.
- Developed an automated evaluation system using configurable judges, annotated datasets, and sampled production calls to monitor campaign quality at scale.

Full-Stack Engineer, Fusion XYZ Jul 2022 - Sep 2022
Melbourne, Australia (Remote)

- Built HiddenGem's Next.js NFT analytics dashboard for real-time floor prices, trading volume, trending collections, and wallet insights.
- Contributed to HiddenGem's Ethereum event-ingestion pipeline for NFT sales, transfers, and marketplace activity.
- Defined coding standards and wrote project documentation for a remote early-stage team.

SERVICE & OUTREACH

Co-organizer, Hackathons for Schools Aug 2020
University of Birmingham (Remote)

- Co-organized a remote hackathon during COVID-19 that introduced high school students (ages 15-18) to programming and software development.
- Collaborated with organizers from multiple UK universities and taught a web development workshop to about 20 students.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, OCaml, Haskell, C, Java

AI / Robotics: PyTorch, NumPy, Pandas, Matplotlib, ROS

Web: React, Next.js, Node.js, FastAPI, PostgreSQL, REST APIs, WebSockets

Infrastructure: GCP, AWS, Docker, Linux, CI/CD

Spoken: Arabic (Native), English (Fluent)