

ALI MERT KARAOGU

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PROFILE

Computer Science and Artificial Intelligence student at the University of Nottingham with a strong interest in Machine Learning, Natural Language Processing, and Large Language Models. Passionate about developing innovative AI solutions that address real-world challenges, with particular focus on responsible and explainable AI systems.

EXPERIENCE

- Jul 2025 - Aug 2025**
BNP Paribas - TEB ARF
Istanbul, Turkey
AI and Data Science Assistant (Internship)
 - Constructed 12-month credit default prediction model utilising Python and scikit-learn to enhance lending decision accuracy.
 - Acquired hands-on experience utilising machine learning techniques for real-world financial data analysis and model performance assessment.
- Sep 2024 - Jun 2025**
University of Nottingham
Team Admin - My Robot Avatar Group Project
 - Facilitated communication and collaboration among team members, organised project meetings, and managed schedules and deadlines.
 - Ensured that project goals were met efficiently while fostering a positive team environment.

EDUCATION

2023-2026 (Expected)
UNIVERSITY OF NOTTINGHAM
Computer Science with AI

SKILLS

- C** - Intermediate
- Java** - Intermediate
- Haskell** - Beginner
- Python** - Advanced
- Machine Learning** - Advanced
- Natural Language Processing** - Intermediate
- Zero-shot Learning** - Intermediate
- Large Language Models** - Intermediate
- HTML/CSS** - Beginner
- JavaScript** - Beginner
- Lean3/4** - Intermediate
- Assembler** - Beginner
- SQL** - Intermediate

CERTIFICATIONS

- MedTech AI Certificate (Mar 2025)**
University of Nottingham MedTech Society
- Introduction to Generative AI (Jul 2025)** - AWS

PROJECTS

Zero-Shot Learning & Explainability for Stock Market Movement Prediction (Oct 2025 - May 2026):

- Developing a data-efficient and trustworthy pipeline to predict stock market movements from financial news using zero-shot classification and large language models.
- Implementing explainable AI techniques to ensure transparent and responsible predictions with automated news data collection.

Natural Language Processing (NLP)-Based Chatbot (Oct 2025 - Dec 2025):

- Built an NLP-based chatbot to classify user intent and handle multi-step interactions (Q&A, game lookup, and a simulated purchase flow).
- Used TF-IDF and cosine similarity for intent matching and designed a modular pipeline (intent handling, question answering, and data filtering).

Breast Cancer Treatment Outcome Prediction - Group Project (Oct 2025 - Dec 2025):

- Developed an end-to-end machine learning pipeline using scikit-learn and PyTorch to predict pathological complete response (PCR) and relapse-free survival (RFS) from clinical variables and MRI radiomics features through classification and regression models.
- Led development of classification models and contributed to regression approaches; evaluated multiple algorithms and selected the best-performing models.

My Robot Avatar Group Project (Sep 2024 - May 2025):

- Architected a ROS 2-based multimodal human-robot interface in CoppeliaSim, integrating voice recognition and hand-gesture control.
- Engineered a hybrid control pipeline combining a local Ollama LLM and rule-based expert system to translate natural-language commands into real-time JSON action messages.
- Developed a cross-platform TCP bridge with intuitive GUI and implemented ARKit support on iPad for live AR visualisation of robot behaviour.

Learning Based Hyper-Heuristic for the Sight-Seeing Problem (SSP), HyFlex (Mar 2025 - Apr 2025):

- Implemented a HyFlex-compatible SSP domain, including instance parsing, solution representation, objective evaluation, and low-level heuristics.
- Designed a learning-based selection hyper-heuristic that adapts which heuristic to apply during the search, rather than relying on a fixed strategy.
- Optimised and tuned the approach to produce competitive solutions under a strict 5-minute runtime budget on unseen instances.

Agent-Based Fire Evacuation Simulation (Mar 2026 - May 2026):

- Developed a Python-based agent simulation comparing Beacon, Sweeper, and congestion-aware Router guide policies in fire evacuation scenarios.
- Ran a 14,400-run factorial experiment across building layouts, fire positions, crowd sizes, and guide policies.
- Applied ANOVA and Tukey HSD analysis to evaluate how intelligent routing affected survival rates across different topologies.