Mihai Mitrea

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Summary

Imperial College London MSc Computing (AI and ML) student (predicted 1st Class) seeking challenging roles at the intersection of AI/ML and software development. Strong practical experience in building ML systems (Python, PyTorch) gained through research projects, with proven skills in software engineering (Java, Spring Boot, Docker) from internship work.

Education

Imperial College London, MSc in Computing (AI and ML) Sep 2024 – Sep 2025
GPA: 8.41/10.0 (Predicted 1st Class Honours)

Delft University of Technology, BSc in Computer Science and Engineering Sep 2021 – Aug 2024
GPA: 8.82/10.0 (1st Class Honours)

Work Experience

Software Engineering Intern, ScenWise Apr 2023 – Jul 2023

Tools and Skills: Java, Spring Boot, TypeScript, React, Docker, Git, MapBox, Software Testing, Agile Methodology

- Built a 3D live public transport web app covering all of the Netherlands by processing real-time geospatial data.
- Designed the backend data pipelines and the time series database schema to support high-frequency updates.
- Implemented internal API communication for vehicle positioning and integrated third-party APIs for route estimation.
- Integrated multiple data sources into a unified real-time event stream for efficient vehicle position estimation.
- Built a high-performance React-based UI with MapBox for real-time visualisation of estimated vehicle locations.
- Set up end-to-end CI/CD pipelines with Docker and GitLab CI, integrating checkstyle, unit tests, and automated builds.
- Increased test code coverage by 30% by writing comprehensive unit, integration, and system-level tests.

Related Projects

Deep Learning for High-Resolution Pollution Mapping Feb 2025 – Sep 2025

Tools and Skills: Python, PyTorch, HPC (Slurm), Deep Learning, Computer Vision, Data Preprocessing, Research

- Developed deep learning models to reconstruct high-resolution air pollution maps from sparse sensor measurements.
- Researched the impact of temporal and multi-pollutant correlation (NO2, PM2.5, PM10, O3) on reconstruction quality.
- Built a modular PyTorch framework to integrate and benchmark state-of-the-art deep learning architectures.
- Researched preprocessing techniques that improve robustness to sensor failures, noise, and out-of-distribution data.
- Leveraged HPC infrastructure to scale experiments, enabling large-scale training and hyperparameter optimisation.

Event Marketplace Application Nov 2022 – Feb 2023

Tools and Skills: Java, Spring Boot, Postman, Design patterns, Program Analysis, Software Testing, Agile Methodology

- Built a microservice-based event marketplace application as part of a 5-person team, following Agile methodologies.
- Led the design of API interfaces and interaction patterns for all 6 microservices by defining the data flow logic.
- Implemented the gateway and security microservices, handling authentication, authorisation, and request routing.
- Maintained test coverage above 80% throughout the development cycle through unit, integration, and systems tests.

ML Model for Kidney Disease Detection Jan 2025 – Mar 2025

Tools and Skills: Python, Scikit-learn, SQL, Pytest, Git, Docker, Kubernetes, Azure Cloud Services

- Developed a low-latency anomaly detection system by integrating tabular models with hospital message streams.
- Designed a fault-tolerant architecture deployed on Azure Kubernetes Service, for high availability and rapid inference.
- Containerised and tested the full pipeline using Docker and Pytest, achieving over 60% code coverage.

Skills

Programming Languages: Java, Python, Scala, Haskell, JavaScript, SQL

Technologies & Libraries: PyTorch, Scikit-Learn, Spring Boot, React, Docker, Kubernetes, Git

Core Competencies: Machine Learning, Deep Learning, HPC (Slurm), Data Structures, Algorithms

Certificates: Certified Associate in Project Management (CAPM)

Languages: Romanian (Native), English (Fluent Speaker)