

HUSSEIN EL DIRANI

MULTIMEDIA AND NETWORKS ENGINEER

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EDUCATION

09/2020 - 06/2025 **ANTONINE UNIVERSITY**
BE in Computer and Communications Engineering.

PROJECTS

Sickle Cell Detection

PYTHON, TENSORFLOW, PYTORCH, OPENCV

- Developed an automated diagnostic pipeline to detect sickle cells from microscopic blood smear images
- Built a ResNet152V2 classifier to distinguish between sickle cell and normal blood samples, exceeding 90% in accuracy
- Implemented a YOLOv11 instance segmentation model to identify and localize 4 blood component types

Blood Disease Website

PYTHON, SCIKITLEARN, PANDAS, SEABORN, LANGCHAIN

- Login/Signup, editable user profiles, doctors and hospitals search function, appointment booking with specific hospitals and doctors
- Trained a machine learning model (Random Forest) for disease prediction based on test results (~99% accuracy)
- Integrated a deep learning model (ResNet152V2 and YOLOv11) for blood cell detection and classification (>90% accuracy)
- Implemented a simple chatbot for RAG-based retrieval of user test records, blood test results analysis, and web search using LangChain and agentic flows.

Medical Records Mobile App

JAVA, SQLITE, FIREBASE

- Phone calls, SMS, email, profile pictures
- Editable user profiles
- Google Maps hospital locations using a Google API Key
- Medical drugs information retrieval using a public API
- Firebase authentication and SQLite implementation

Mushroom Classification

MACHINE LEARNING, DATA ANALYSIS AND VISUALIZATION

- Developed a machine learning model to classify mushrooms as edible or poisonous using a categorical dataset from Kaggle
- Engineered features by converting categorical variables into a model-ready format and evaluated multiple algorithms
- Optimized model hyperparameters, achieving near-perfect prediction accuracy

TECHNICAL SKILLS

- Python (Advanced): NumPy, Pandas, Matplotlib, OpenCV, Scikit-learn
- Machine Learning: Classification, Regression, Hyperparameter Tuning, Deep Learning (Neural Network Architectures)
- Data Visualization: Tableau (Interactive Dashboards), Matplotlib, Seaborn
- SQL (MySQL): Complex Queries, Joins, Database Design, Stored Procedures
- Version Control: Git/GitHub

CERTIFICATES AND INTERNSHIPS

07/2023 - 09/2023

SOFTWARE ENGINEER INTERN

At IDS Fintech

PROJECT

- Developed a library management desktop app using C#/.NET
- Created APIs, controllers and endpoints with ASP.NET, following professional repository patterns, implementing CRUD operations
- Employed Postman in order to test APIs.
- Connected to SQL Server using stored procedures

07/2024 - 08/2024

UNITY GAME DEVELOPMENT TRAINEE

At Upscale Hub

PROJECT

- Developed a learning game about the human body, designing interactive 3D environments with organ selection, information pop ups, rotation and zooming
- Developed script logic for a quiz themed about each organ system, with quiz scores saved in an SQLite database for each username

WORK EXPERIENCE

08/2024 - 12/2024

QA ENGINEER AND GAME TESTER

At Upscale Hub

WORK

- Authored test cases and user scenarios for a 3D educational game
- Executed testing of version releases against defined user journeys
- Reported bugs, UI issues, and improvements via Azure DevOps Boards

07/2025 - Present

RESEARCH ASSISTANT

At TICKET Lab - Antonine University

WORK

- Conducted a literature review of 20+ papers about the detection of AI-generated deepfakes, identifying limitations in current approaches
- Designed and implemented a novel solution, improving model accuracy by 2.6% over baseline methods
- Built a testing pipeline comparing 8 models across 3 benchmark datasets