

# ABDELMOUHAIMEN SARHANE

Last year student in Digital Sciences at INP-ENSEEIH, specializing in Image, Multi-media, and Artificial Intelligence, seeking a professional contract in the AI field starting from September 2024 for my final year of studies.

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Abdelmouhaimen



## PROFESSIONAL EXPERIENCE

June 2024 - September 2024

GET-OMP

### Deep Learning for Long-term Monitoring of West African Water Bodies | CNRS

- Adapt and apply a CNN U-Net deep learning algorithm to Landsat satellite images for recognizing lakes.
- Analyze water surface changes in West Africa from 1984 to present
- Evaluate the water detection results against existing products.
- Technologies Used: Python, TensorFlow, QGIS, GDAL*

June 2023 - July 2023

ENAC

### IT Researcher and Developer Internship

- Conducted energy consumption assessment in matrix computations for compressed data.
- Developed C applications to compare compressors such as Blaz and ZFP using PowerJoular, while also applying them in the sports analysis field, particularly in creating heatmaps for player movement.
- Contributed to the writing of a paper which was accepted at the ICT4S 2024 conference.

## EDUCATION

### Computer Science: Image processing and Multimedia | INP-ENSEEIH - Toulouse | 2022-2025

- Advanced coursework in Artificial Intelligence methodologies, including Computer Vision, Deep Learning, and Image Processing.
- Extensive training in Concurrent Systems, Distributed Data, and Model-Driven Engineering & Diverse courses ranging from applied mathematics, Statistics, Optimization, Operations Research, artificial intelligence to business strategy, sustainable development, and project management.
- Digital Audio 3D Modeling, Compression, Streaming, and Interactions, Augmented Reality, Inverse Problems for 3D, Cloud Computing and Big Data
- Skills :** Python & libraries (sklearn, pomegranate, scipy, tensorflow, nltk, openCV), SQL, R Studio, Microsoft Office (PowerBI, Excel, PowerPoint), Java, OCamL Docker, OpenVINO, Azure, AWS, Matlab, WebDev Stack(Django/Flask, HTML, CSS, JS, Ajax, React)

### MPSI/PSI Preparatory Classes | CPGE SAINT-BENOIT - Angers | 2020-2022

## PROJECTS

### Personal Project | Customer Behavior Analytics using Computer Vision | June 2024 - Present

- Developed a computer vision solution using Roboflow and YOLOv8 for detecting and tracking customer movements in retail spaces.
- Generated heatmaps via 2D perspective transformation to visualize customer behavior and movement patterns, providing insights to optimize store layouts and marketing strategies.
- Currently enhancing the system with new features, including person re-identification across multiple cameras, theft detection, and plans for deployment on edge devices like NVIDIA Jetson for real-time processing.

### Personal Project | Sentiment Analysis on Movie Reviews using LLMs | 2024

- Developed sentiment analysis system for movie reviews using Large Language Models (LLMs)
- Collected and preprocessed movie reviews from various online platforms. Fine-tuned pre-trained LLMs and evaluated model performance.

### Academic Projects | Deep Learning and Computer Vision | 2024

- Implementation of neural networks using numpy. Dogs and cats classification. Posture estimation. Object detection and localization. Handwriting recognition.
- Traffic sign image classification, data preprocessing and augmentation, model optimization techniques to prevent overfitting and improve generalization.
- Technologies Used: Python, TensorFlow, Keras, Matplotlib*

### Personal Project | Traffic Light Optimization with AI | 2023

- Optimization of traffic light control using deep learning based on traffic density calculated from image processing and car detection with cameras via OpenCV.

### Interesting Academic Projects | 2023/2024

- Created a Shazam-like system in MATLAB using a self-built music database, and developed a program for source separation from audio signals.
- Development and implementation of advanced image processing techniques from (restoration, active contours, photomontage, structure/texture decomposition)
- 3D Rendering Engine in Java : Implementation of a complete graphics pipeline including coordinate transformation, rasterization, shading and texture mapping
- RevEasy — Interactive Java Swing Learning Platform : Implementing Quiz Mechanisms for personalized review options, backend logic implementation.