

ABDELMOUHAIMEN SARHANE



School: INP-ENSEEIH **T** | Looking for: 6-month final-year internship | Starting: March 2025

Specialization: AI/Data/Computer Vision, Image Processing

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Abdelmouhaimen

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EDUCATION

ENSEEIH **T** - Toulouse | 2022-2025

Digital Sciences Engineering Diploma: Image and Multimedia

CPGE SAINT-BENOIT - Angers | 2020-2022

Preparatory Classes (MPSI/PSI)

SKILLS

- Python, C++, Sklearn, SciPy, PyTorch, nltk, OpenCV, OpenVINO, AWS, Flask, MLFlow
- Values: Curiosity, Autonomy and adaptability, Team spirit, Expertise, Creativity

LANGUAGES

- English: Bilingual | French: Bilingual | Arabic: Native

PROFESSIONAL EXPERIENCE

June 2024 - September 2024

GET-OMP

Research Engineer Intern in Deep Learning | CNRS

Tools: Python, TensorFlow, QGIS, GDAL

- Developed a CNN U-Net model with attention mechanisms for detecting and analyzing water bodies in West Africa using Landsat satellite images.
- Enhanced model performance, achieving an F1-score of 94% through preprocessing and parameter optimizations.
- Analyzed temporal changes in water bodies from 1984 to the present, providing critical insights for sustainable water resource management.
- Optimized geospatial analysis pipelines by integrating NDWI and MNDWI indices, addressing challenges in distinguishing water bodies from surrounding areas.

June 2023 - July 2023

ENAC

HPC Developer and Data Analyst Intern

Tools: C/C++, Pandas, PowerBI

- Evaluated energy consumption of matrix calculations on compressed data, demonstrating up to 35% energy savings using the Blaz compressor.
- Designed and implemented matrix calculation workflows in C++ to measure energy efficiency with PowerJoular.
- Applied advanced compression techniques to analyze sports heat maps, reducing computational overhead by 25%.
- Contributed to a scientific publication accepted at ICT4S 2024, showcasing energy-efficient methods for scientific computing.

PROJECTS

ENSEEIH **T** Projects | Multimodal Data Processing | September 2024

Tools: Matlab, OpenGL, OpenCV, C++, Python, TensorFlow

- Image Stitching: Interest point detection, Harris/SIFT operator, homography estimation.
- Segmentation: K-means algorithm, superpixels with the SLIC method.
- Source Separation: Spectrogram decomposition using NMF, neural network-based separation (U-net).
- 3D Streaming: Compression and decompression of 3D objects with advanced remeshing techniques.
- Camera Tracking and 3D Object Rendering: KLT method, camera pose estimation, 3D rendering with OpenGL.
- 3D Inverse Problems: SfM, MVS, Shape-from-shading, stereo photometry.

Personal Project | Customer Behavior Analysis | June 2024 - Present

- Developed a computer vision solution using Roboflow and YOLOv8 to track customer movements in supermarkets and generate 2D heatmaps for behavioral analysis.
- Planned improvements: multi-camera re-identification, theft detection, and deployment on NVIDIA Jetson for real-time processing.

Personal Project | Chatbot Development with RAG Technique | September 2024

- Created a Python chatbot using Retrieval-Augmented Generation (RAG) to extract data from textual documents, combining LLM-based text generation with database indexing using LlamaIndex.

3D Rendering Engine in Java: Full Graphics Pipeline Implementation | 2024

Development of a Compiler in OCaml for a Simplified Language | 2023