

Master's in Data Science and Intelligent Systems

Experience

- March 15, 2024 - Sep 14, 2024 **Research&Development internship on Computer vision for fetal ultrasound image analyses**, [DEEPECHO](#), Rabat, Morocco
- Data Scientist at DeepEcho, developing computer vision models for fetal ultrasound to detect and identify baby organs. Utilized Vision Transformers (ViTs) for optimal frame selection and GAN-based architectures to reduce speckle and regular noise, enhancing image quality and organ detection in video frames.

Education

- 2022 - 2024 **2nd year M.Sc. in data science and intelligent systems**, [Mohammed Premier University](#), Oujda-Nador, Morocco
- Lectures in the field of Data Science, Artificial Intelligence, and their related technologies: Machine Learning, Big Data, Natural Language Processing, Security, Advanced Web Development, Databases Management, and Cloud Computing.
- 2018 - 2022 **Bachelor's degree in mathematics and computer science**, [Mohammed Premier University](#), Oujda-Nador, Morocco
- Computer science: Advanced Databases, JAVA, OS Programming (Linux), Advanced Web Development, and Networking.
 - Mathematics: Numerical Analysis, Linear Algebra, Optimization, Probability Theory, Statistics, Integration Calculus, Complex Analysis.
 - **Self-taught**: Machine Learning, C programming, Python Programming, SQL.
- 2015 - 2016 **High school degree in physics and chemistry**, *Farkhana High school*, Nador, Morocco

Publications

- December 15, 2023 **IOTA TANGLE 2.0: AN OVERVIEW**, *Mohamed Fartitchou, Jamal Boussouf, Khalid El Makkaoui, Yassine Maleh, Zakaria El Allali*, The EDP Audit, Control, and Security Newsletter
- Link to: [Paper](#)
- March 10, 2023 **Signing Algorithms Behind Blockchain Digital Transactions**, *Jamal Boussouf, Khalid El , Youssef Lamriji, Zakaria El Allali*, International Workshop Industry 4.0: Digital Transformation and Innovation, Tetouan, Morocco
- Link to: [Slides](#) - [Certificate](#)

Bachelor and M.Sc. Academic Projects

- 2023 **Advancing Diabetic Retinopathy Detection: Fine-Tuning ViT Models**
- This work focuses on using Vision Transformer (ViT) models to detect diabetic retinopathy in retinal images. The goal is to create a scalable solution for timely diagnoses, improving patient outcomes in managing diabetic retinopathy.
 - Link to: [Source code](#) - [Slides](#)
- 2023 - (72 hours) **ChatEstimate: Machine Learning Model & Conversational Chatbot for House Price Predictions**, *Hackathon I2A'01*
- This project integrates a chatbot with a regression model to predict house prices using machine learning, enhanced by the LLMs API (GPT-3.5 Turbo) to improve conversational capabilities.
 - Link to: [Source code](#) - [Slides](#)
- 2023 **Optimizing Investments: Stock Analysis and Predictive Modeling of NVIDIA Corporation**
- Application of standard machine learning techniques (Logistic regression, k-NN, and PCA) and LSTM models to design a predictive model for NVIDIA stock market analysis.
 - Link to: [Source code](#) - [Slides](#)

2022 **Robust Speech Recognition with Generative Adversarial Networks**

- The aim of this work was to develop a deep learning model to improve the performance of a speech recognition system in the presence of additive Gaussian noise. To this end, we implemented the SEGAN (Speech Enhancement Generative Adversarial Network) model to generate clean speech signals from noisy inputs, yielding a more robust and improved speech recognition system.
- Link to: [Source code](#) - [Slides](#)

2022 **Implementation of a secure P2P chat application with JAVA,**

- In this project, a secure P2P chat application was developed using the JAVA programming language. The system is designed with a strong, decentralized (P2P), and end-to-end encrypted network architecture.
- Link to: [Source code](#)

2022 **Elliptic curve cryptography,**

- This project explores elliptic curve cryptography (ECC) to boost computational efficiency. Using PARI/GP, it optimizes ECC operations and benchmarks performance against other algorithms, analyzing computational time and showcasing ECC's cryptographic advantages.
- Link to: [Source code](#)

2021 **Implementation of a basic Blockchain system with JAVA,**

- Design and UML modeling of a Blockchain system for transaction management.
- Implementation of a decentralized money transaction system based on Blockchain technology with Java.
- Link to: [Source code](#)

Personal projects

2023 **Legolingo: Development of mobile, Web, and desktop applications for teaching languages (Spanish, English, French, and German) and evaluating language level leveraging the chatGPT API, Team of three members**

- We developed an AI tool leveraging chatGPT which teaches various languages vocabulary and evaluates the human level in languages with AI. Evaluation of writing, speaking, and listening performances.
- I started this project in March of 2023 and I mainly created this tool to improve my level of English which is still in progress.

Scientific and computer skills

Maths Linear algebra, functional analysis, probability and statistics, linear programming, optimization.

Security Architectures P2P, Blockchain, cryptography, digital signature, hash method, IDS.

AI Logistic regression, deep learning (multilayer perceptron, convolutional neural networks, transformers), dimension reduction (principal component analysis), automatic natural language processing (NLP), image classification, data visualization, generative adversarial networks and LLMs, ViTs, VLMs

Big Data Hadoop, MapReduce, Hive, Hbase, Spark.

Codes PYTHON, C/C++, JAVA, JAVA EE, PHP, HTML, CSS, SQL, NOSQL, LATEX, SHELL.

Software MongoDB, NetBeans, Oracle, Visual Studio, Jupyter, Notepad++, Packet Tracer, Adobe (Photoshop, Illustrator, XD), Inkscape.

Libraries Security: java-security, RSA, SHA-256, hashlib.

Machine learning: Scikit-Learn.

Deep learning and computer vision: datasets, transformers, TensorFlow, PyTorch, Keras, OpenCV.

Languages Arabic (native), English (good), French (fair).

Volunteering

Feb 2023 - **Treasurer of an artificial intelligence Club, I2A Club - Mohammed Premier University - Nador**

Present ○ As Treasurer of the AI Club, I manage documentation and finances, supporting a vibrant student community exploring artificial intelligence.

○ Link to: [web site](#)

Feb 2024 - **Core team member, AtlasIA - Community**

Present ○ On this mission, my team and I are going to create an AI that celebrates Moroccan culture.

○ Link to: [web site](#)

[LinkedIn](#)

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