ATTAR BILAL ADEM

AI & Data Science Engineer

About Me

AI & Data Science Engineer with expertise in ML, DL, NLP, and IoT. Experienced in building smart greenhouse systems using computer vision and AI for automated monitoring and control. Skilled in predictive modeling, NLP pipelines, and deploying end-to-end intelligent systems. Passionate about leveraging technology for sustainability and real-world impact

Contact

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📍 Calais, Hauts-de-France, France

Skills

Technical Skills: Proficient in Python, JavaScript, and SQL, with extensive experience in FastAPI, Flask, TensorFlow, and PyTorch. Expertise in statistical modeling, machine learning, and deep learning (CNN, RNN, Transformers), reinforcement learning, LLMs, NLP, and computer vision. Skilled in full-stack development using React.js, Next.js, and Node.js, complemented by Docker, Git/GitHub, Power BI, web & social media scraping, and LaTeX. Well-versed in database management and cloud solutions, with deployment experience on modern development platforms.

Additional Skills: Data analysis, feature engineering, big data processing, model optimization, experiment tracking, visualization using Python libraries and BI tools, and advanced statistical modeling techniques for predictive analytics and algorithmic solutions.

Soft Skills: Proven ability to solve complex problems, manage projects effectively, and work collaboratively in teams. Strong time management, critical thinking, and attention to detail. Adept at analysis, brainstorming, decision-making, and conceptualization. Excellent communication and interpersonal skills.

Education

2025 – Present • Master 1 in Signal Processing – Université Côte d'Opale, Calais (France)
2020 – 2025 • Engineer Diploma in AI & Data Science – ESTIN, Bejaia (Algeria)
2024 – 2025 • Master of Research in AI & Data Science – ESTIN, Bejaia (Algeria)
Degree obtained on July 2, 2025

Professional Certificates

DeepLearning.AI – Stanford University (Coursera)

- Structuring Machine Learning Projects | Dec 2023
- Neural Networks and Deep Learning | Oct 2023
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization | Nov 2023

Languages

- **French:** Native
- **Arabic:** Native
- **English:** Advanced – scientific reading, technical writing, fluent speech

Experiences

AI Engineer   Oct 2024 – Jun 2025

BI ENGINEERING TECH

Designed An **AI-Powered Greenhouse System** For **Real-Time** NPK Deficiency Detection Using **YOLO**, Integrating ESP32 **IoT** Sensors, Firebase, And React Native For Monitoring, Actuator Control, And **AI Recommendations**. Collected And Augmented Plant Leaf Datasets To Optimize **Deep Learning** Models For Large-Scale Operations.

Network Engineer   Jun 2024 – Jul 2024

Banque Nationale d'Algérie (BNA)

Redesigned **Internal Network** Architecture Using Segmented VLANs With Cisco Packet Tracer. Configured Layer 2/3 Switches, **Inter-VLAN Routing**, And **ACLs** To Improve Bandwidth, Security, And Service Isolation For Digital Transformation.

Data Scientist   Jun 2024 – Jul 2024

The Sparks Foundation

Built Predictive Models Including **Linear Regression**, **Decision Trees**, **K-Means Clustering**, And Hybrid Stock Price Forecasting Combining Numerical Data With News Sentiment. Conducted **EDA** And **Feature Engineering** Across Multiple Datasets Using Python And Pandas.

Projects

Portfolio Optimization (PPO, DDPG, SAC)

Implemented Reinforcement Learning Algorithms (PPO, DDPG, SAC) For Dynamic Multi-Asset Portfolio Optimization. Designed A Custom Trading Environment With Transaction Costs And Rebalancing Constraints, Applying Reward/Risk Metrics (Sharpe, Sortino) For Evaluation.

Option Pricing & Volatility Models

Developed Volatility Surfaces And Implemented Stochastic Volatility Models (SABR, Heston) For Option Pricing. Calibrated Models To Market Data, Generated Implied Volatility Smiles/Skews, And Applied Risk-Neutral Pricing Methods For Hedging Strategies.

Smart Greenhouse AI System

Designed And Implemented An Autonomous Smart Greenhouse Using IoT, AI, And Solar Power. Achieved 99.7% NPK Classification And Real-Time Fruit Detection With YOLO-Based Deep Learning, And Developed A React Native App For Monitoring And Control. Integrated Multi-Sensors (ESP32) And Cloud (MQTT-Firebase) For Efficient Resource Management And Enhanced Crop Productivity.

Medical QA LLM Fine-Tuning

Fine-Tuned DistilBERT On A Medical QA Dataset Using PEFT Methods (Adapter Layers, Prompt Tuning, Pruning). Tested For Training And Inference Efficiency And Evaluated Using F1-Score, Exact Match, And Cosine Similarity For Accuracy And Semantic Relevance.

Multiclass Video Recognition (UCF101)

Trained A Deep Learning Model Using The UCF101 Dataset (13,320 Videos, 101 Human Actions). Implemented Data Preprocessing, Video Frame Extraction, And An EfficientNet-Based Architecture Wrapped In TimeDistributed Layers. Achieved Strong Performance In Action Recognition With Transfer Learning, Visualizations (ROC, Confusion Matrix), And Performance Evaluation Metrics

CarHub Marketplace

Developed A Modern Car Marketplace Platform With Next.Js And TypeScript, Featuring Real-Time Chatting Between Users And Dealers Via WebSockets. The Platform Integrates A Visually Engaging Car Showcase With Dynamic Communication Features, Creating A Seamless Experience For Buyers And Sellers.

Stock Prediction with Sentiment Analysis

Implemented A Hybrid Model Combining Financial Time-Series Data With News Sentiment Signals For More Accurate Stock Price Forecasting.