

# Houssem Eddine Bouagal

## Artificial Intelligence Engineer

 [mouhamedhoussem813@gmail.com](mailto:mouhamedhoussem813@gmail.com)  +213 660 87 69 91

 Guelma, Algeria  [Houssem Eddine Bouagal](#)  [HoussemBouagal](#)

## SUMMARY

---

Artificial Intelligence Engineer with 3 years of freelance experience in designing, training, and deploying ML/DL models. Skilled in end-to-end machine learning pipelines, MLOps best practices, and cloud-based deployment. Strong background in data preprocessing, hyperparameter tuning, and model optimization. Passionate about building production-ready AI systems that deliver measurable business impact.

## EXPERIENCE

---

### Data Science Intern – University 8 May 1945, Guelma

Jan 2025 – Jun 2025

- Developed and deployed a hybrid recommender system for IoT environments using Flask API.
- Optimized the inference pipeline, reducing latency by 20%.

### Machine Learning Intern – Codveda Technologies (Remote)

Aug 2025 – Sep 2025

- Completed advanced ML tasks: Random Forest (Customer Churn Prediction), SVM (Iris Binary Classification), Neural Networks (Iris Multi-Class Classification).
- Applied SMOTE balancing, hyperparameter tuning (GridSearchCV), cross-validation, and early stopping.
- Achieved strong performance: Random Forest (94.3%), SVM (90%, AUC=1.0), Neural Network (93.3%).
- Built reproducible ML pipelines with saved models, visualizations, and structured documentation.

## SKILLS

---

- **Machine Learning & AI:** TensorFlow, PyTorch, Keras, Scikit-learn, XGBoost, NLP, Computer Vision, HuggingFace, LangGraph
- **MLOps & Deployment:** MLflow, Docker, Kubernetes, CI/CD
- **Cloud Technologies:** GCP, BigQuery
- **Data Engineering:** Pandas, NumPy, Apache Spark
- **Databases:** PostgreSQL, MySQL, MongoDB
- **Web Frameworks:** Flask, Streamlit, Gradio
- **Visualization:** Matplotlib, Seaborn, Tableau, Power BI
- **Programming Languages:** C, Python, Java
- **Version Control:** Git, GitHub
- **Soft Skills:** Communication, Problem Solving, Time Management, Teamwork

## PROJECTS

---

**Fracture Detection System** Developed a Flask-TensorFlow web app for bone fracture detection with 98% accuracy using ResNet101 + CBAM, featuring instant predictions and visualization. [Project Link](#)

**Brain Tumor Classification** Created a desktop application for automated brain MRI classification using TensorFlow and EfficientNetB2. Achieved 97% testing accuracy across four tumor categories. Designed a Tkinter-based GUI for offline inference, real-time prediction visualization, and diagnostic support. [Project Link](#)

**AI-Powered Image Enhancement Web App** Developed a web app using ESPCN and Conditional U-Net models to upscale and denoise low-resolution images. Integrated Flask, PyTorch, and interactive image comparison tools, achieving PSNR of 28.85 dB and SSIM of 0.9261. [Project Link](#)

**Movie Recommender System** Implemented a hybrid movie recommender using collaborative and content-based filtering with TensorFlow. Achieved MAE of 0.1708, Precision@10 of 0.71, and Recall@10 of 0.62. Deployed a Netflix-style Flask web interface with genre filters and star ratings. [Project Link](#)

**Arabic LLM-Powered Chatbot** Built an intelligent chatbot in Arabic using HuggingFace Transformers and LangGraph. Integrated a RAG pipeline with FAISS for contextual retrieval and memory. Deployed the chatbot as a Flask API with Docker for scalability and real-time interaction. Enhanced user experience with natural language understanding and responsive conversational flow. [Project Link](#)

**Amazon Review Sentiment Analyzer** Flask-based web app using a Bidirectional LSTM model for real-time sentiment analysis of Amazon reviews. Achieved over 95% testing accuracy with an Amazon-themed responsive interface and integrated evaluation visuals. [Project Link](#)

## EDUCATION

---

- **University 8 Mai 1945 - Guelma** Sep 2023 – Jul 2025  
Master's Degree in Information Systems Guelma, Algeria
- **University 8 Mai 1945 - Guelma** Sep 2020 – Jul 2023  
Bachelor's Degree in Information System and Software Engineering Guelma, Algeria

## CERTIFICATIONS

---

- Huawei Certified ICT Associate – AI
- AI Technology and Applications – Huawei ICT Academy
- Internet of Things Technology and Applications – Huawei ICT Academy
- Algorithms and Program Design – Huawei ICT Academy

## PUBLICATIONS

---

- Bouagal Houssem Eddine, *et al.* (2025). *Design and Evaluation of a Fog-Based Recommender System for IoT Environments*. In *Proceedings of the 8th International Conference on Informatics and Applied Mathematics (IAM'25)*, University 8 Mai 1945, Guelma, Algeria.

## LANGUAGES

---

- Arabic – Native
- French – Intermediate
- English – Advanced