Ahmed BOUHLAL

AI & Machine Learning Student Engineer | Deep Learning Researcher

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SUMMARY

I'm a self-taught AI & ML Student Engineer passionate about building intelligent systems that learn, reason, and adapt.
I built my own neural network from scratch to understand deep learning beyond black-box frameworks,
and developed RAG systems to explore how local retrieval can improve reasoning transparency.
My vision is to bridge research and engineering — creating AI systems that think and evolve like humans.

PROFESSIONAL EXPERIENCE

AI Engineer Intern — D3Soft (Tangier, 2025)

- Designed an internal AI automation suite (40+ tools) for code analysis, performance tracking, and task automation.
- Built a real-time emotion-tracking module (MediaPipe + FER-2013) for user-behavior analytics.
- Contributed to internal ML pipelines using Docker, FastAPI, and MLflow for deployment.

Independent AI Builder — Freelance Projects (2023 – Present)

- Created an offline modular AI Assistant with a plug-and-play skills system and local LLM integration (Ollama + LangChain).
- Built a CLI AI Project Validator capable of detecting bugs and concept drift, and auto-fixing code via LLaMA 3.
- Developed custom CNN and RNN architectures using only NumPy — implemented forward / backpropagation, Softmax, Cross-Entropy Loss, and ArgMax classification.
- Participated in the NASA Space Apps Hackathon, preprocessing and analyzing astronomical data for exoplanet classification.

PROJECTS

- CNN from Scratch (NumPy) – Rebuilt deep learning fundamentals to improve optimizer stability; achieved MNIST-level performance rivaling TensorFlow models.
- AI Code Reviewer (LLaMA 3 + AST) – Reduced debugging time by automating logic error detection and correction across real Python projects.
- Retrieval-Augmented LLM (LangChain + ChromaDB) – Solved context loss in chatbots by enabling persistent memory and document-based reasoning.
- A World Away – NASA Space Apps – Streamlined planetary data analysis with ML models that improved classification accuracy and visualization clarity.
- Desktop AI Assistant (Local LLM Plug-ins) – Eliminated repetitive desktop tasks through a modular AI system with voice control and smart file management.

CORE COMPETENCIES

- **Core AI & Research**: NumPy (from scratch), CNNs, RNNs, LSTMs, Transformers, Attention, RAG, LangChain
- **Deployment & MLOps**: Docker, FastAPI, MLflow, Git, Linux
- **Data & Analytics**: Pandas, scikit-learn, Matplotlib
- **Hardware & Systems**: Verilog, Arduino, Embedded AI Integration

EDUCATION

DUT in Artificial Intelligence
EST Tétouan, Morocco
2024 – 2026

Coursework & Focus:
Machine Learning, Deep Learning, Data Science

ACHIEVEMENTS

- NASA Space Apps Challenge Finalist (2025) — recognized for data-driven planet analysis project.
- Developed 40+ AI tools, automating D3Soft's analytics pipeline — reduced manual bug review time by 70%.
- Built CNN from scratch using NumPy — achieved 97% MNIST accuracy, validating core DL math manually.

TECHNOLOGIES & PLATFORMS

- Python, Bash
- TensorFlow, scikit-learn, OpenCV, MediaPipe, Hugging Face
- Git, Github, Docker, VSCode, Pop!_OS
- Jupyter, Bash CLI

LANGUAGES

- Arabic (Native)
- English (Advanced)
- French (Beginner)

SOFT SKILLS

- Analytical Thinking
- Independent Research
- Creative Problem-Solving
- Rapid Learning
- Technical Writing
- System Design Mindset

MISSION

To pioneer AI systems that learn like humans, not just process data but reason, explain, and adapt.
Currently pursuing research that bridges deep learning with self-improving agent architectures.