

# Ahmed BELAAJ

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## EDUCATION

### Telecom Paris & ENSTA Paris, Institut Polytechnique de Paris (IPP)

**Expected Graduation: Feb 2025**

Postgraduate Diploma in Artificial Intelligence

### National Institute of Applied Science and Technology (INSAT Tunis)

**Graduated in Oct 2022**

Computer Science National Engineering Diploma

## SKILLS

**Programming** *Proficient* Python(5yrs) *Intermediate* JavaScript(3yrs) · Java(2yrs) · SQL(3yrs) · C/C++(2yrs)

**Software** GCP · Kubernetes · TensorFlow · JupyterNotebook · Pytorch · Docker · Git · Bash · Sci-kit Learn · Scipy · Open-CV

**Machine Learning** Data preprocessing · ML algorithms · Hyperparameter Fine-Tuning · Natural language processing (NLP)

## EXPERIENCE

### Software Engineering Resident

**Dec 2024 - Present**

Headstarter

New York, NY

- Building 14+ machine learning, AI engineering and full-stack projects in fast-paced software team environments
- Coached by Google Machine Learning, Google Kubernetes, Two Sigma, Tesla, Figma and Citadel Engineers

### Data Science Intern

**Jul 2024 - Dec 2024**

EagleAI

Paris, FR

- Developed STaR, a recommendation model leveraging attention mechanisms
- Boosted model capacity in generating new offers to customers by up to 14%
- Optimized model training to 80% using Flash Attention, mixed precision training, and optimization workflows
- Streamlined data workflows, cutting disk I/O redundancy and improving testing efficiency

### Artificial Intelligence Intern

**Mar 2022 - Aug 2022**

Polytechnique Montreal

Montreal, QC

- Designed CHATR, an RL-based framework for chatbot testing, improving failure detection rates by 20%
- Increased input validity above 95% through semantically-preserving transformations
- Demonstrated 93% valid conversation rates in tests, advancing industry-grade AI evaluation
- Created a custom reward function, boosting adversarial attack efficiency and fault coverage

### Machine Learning Intern

**Jul 2021 - Aug 2021**

Professional Management Consulting (PMC)

Sfax, TUN

- Implemented a machine learning model to predict motor bearing failures with an accuracy of 95% using XGboost
- Conducted temporal and frequency analysis, extracting significant features
- Examined approaches to enhance model performance, including cross-validation and hyperparameter tuning

## AI PROJECTS

### Pentagram - Instagram Clone for AI-generated images | Individual Project (~30 hours) - [GitHub Link](#)

**Dec 2024 - Present**

- Built an Instagram-style app enabling image generation from text prompts with <2s latency
- Optimized costs using cold start techniques, keeping monthly GPU expenses under \$30
- Developed a secure image generation API with Modal and ReactJS, storing images efficiently in Vercel Blob

### Brain Tumor Classification

**Dec 2024 - Present**

- Engineered neural networks to classify 1000 MRI scans into 3 types of possible brain diseases with a custom model
- Generated multimodal MRI reports for neurosurgeons in under 200MS after image classification, construction & training

### Fine-Tuning Open-Source RAG System for Renault | Team Project (~50 hours)

**Feb 2024 - Jun 2024**

- Collaborated with 3 teammates to integrate domain-specific knowledge documents, enhancing system accuracy
- Fine-tuned a Retrieval-Augmented Generation (RAG) system to enable precise question-answering on Renault's technical jargon and automotive industry knowledge

## Languages

English

**TOEFL (96 / 120)**

French

**TCF (500 / 599)**