



Abdelaziz BOUNHAR

Senior AI Research Scientist / Engineer

📍 Paris | 🧑 27 years old, Single, Moroccan-French double nationality | 🚗 driving license

☎ (+33) 7 58 22 64 25 | ✉ bounhar.abdelaziz@gmail.com

🐙 [Github](#) | 🤗 [Hugging Face](#) | [in LinkedIn](#)

A Ph.D. in Artificial Intelligence and Information Theory with a solid background in Machine Learning and a professional experience in the field throughout my career including my senior AI research scientist/engineer role, Ph.D., internships, open-source and personal projects. Skilled in formulating and solving complex problems. With strong communication, teamwork, and adaptability skills. My research interests include **Reinforcement Learning**, **generative AI** (code, text, audio, images), **AI de-biasing**, **AI security**, **AI for Telecom**, and **AI application** to complex problems. Looking for a challenging research position in AI within a dynamic work environment.

PROFESSIONAL EXPERIENCE

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)

Apr. 2025 – Present

Senior AI Research Scientist / Engineer – LLM Post-Training (Full-time)

Paris, France

- **Focus:** Post-training of Large Language Models (LLMs), with emphasis on **Reinforcement Learning, Safety, and Alignment**. Ensuring models are robust, culturally and ethically aligned, and deployable in real-world settings.
- **Key Contributions:**
 - Responsible of the optimization and implementation of a **large scale multi-node Asynchronous Reinforcement Learning** training pipeline for a **reasoning-oriented LLMs**. Improved training efficiency by a **factor of 5**.
 - Responsible of the implementation of **Agentic Reinforcement Learning pipeline**.
 - Developed large-scale multi-node Supervised Fine-Tuning (SFT) for a **reasoning-oriented LLMs**.
 - Developed large-scale multi-node inference API based on **vLLM** for fast and efficient synthetic data generation.
 - Contributed to **veRL**, the **largest Reinforcement Learning** for LLMs framework.
 - Contributed to the **safety and alignment training** of **Nile-Chat**, an Egyptian aligned LLM. Submitted to **ArabicNLP 2025**.
 - Main supervisor of an intern on **cultural alignment** of LLMs.

Télécom Paris

Oct. 2021 – Dec. 2024

Ph.D.

Palaiseau, France

- **Topic:** Information Theory and Reinforcement Learning for Future Wireless Networks with hard security constraints.
- Supervised by **Pr. Michèle Wigger** and **Dr. Mireille Sarkiss**.
- **Contributions:**
 - Derived the fundamental limits of communication systems with covertness constraint (a hard security constraint) using **Information Theory**.
 - Used the derived **theoretical** limits to build **practical** policies that optimize the behavior of the users, minimizing the packet loss and energy consumption under security constraints using **Reinforcement Learning**.
 - Published and submitted to top-tier conferences and journals in the field: **ISIT'23** [1], **NeurIPS'23** [2], **ICC'24** [3], **ISIT'24** [4], **Globecom'24** [5], **ICASSP'25** [6], **TIT'24** [7], **TIT'24** [8], **TC'24** [9], **ITW'25** [10], **ITW'25** [11].
- **Awards:**
 - Awarded the Institut Polytechnique de Paris **Best PhD. Thesis Award** from the Information, Communication & Electronics department.
 - Awarded the 2023 **1st ICST Doctoral students prize**. This yearly prize is given to the **best scientific production of both Institut Polytechnique de Paris and Université Paris Saclay**.
 - Awarded the 2022 **best contributions of the year** at the Comelec department of **Télécom Paris**.

IDEMIA

Mar. 2021 – Sept. 2021

Deep Learning Research Intern

Paris la défense, France

- Worked with IDEMIA's Research and Technology Unit (URT) on **Generative AI** models for **Deep Compression** and **Super Resolution** of facial images.
- The project involved compressing passport-type facial images into a QR code of less than 1 kbits and Generative Adversarial Networks (**GAN**) were used to restore the compressed images with the constraint of not distorting the biometric data.
- **Reduced inference time** from 30 seconds (baseline) to 300 milliseconds (**100x improvement**).
- Tools: Python, PyTorch, Numpy, OpenCV, webptools, PIL, Git, Gitlab.

Konvergence B&T

Jan. 2020 – Jul. 2020

R&D Data Engineer Intern

Levallois-Perret, France

- Optimized the kShuttle calculation engine for seamless integration with **Big Data** environments.
- Developed a Synchronizer for **data historization** using a **NoSQL** database and refined aggregation processes by loading compact cubes, which significantly improved **data utilization** once loaded and cached.
- Tools: Java, Elasticsearch, PostgreSQL, MongoDB, Jira, BitBucket, SVN, Confluence, VisualVM, Agile (Scrum).

Soft Centre

May 2019 – Sept. 2019

R&D Data scientist Intern

Rabat, Morocco

- Engineered a cutting-edge AI solution leveraging advanced **Machine Learning** and **NLP** techniques to profile users using their interactions in a social network, while preserving user privacy.
- Enhanced the system's capabilities with state of the art **Sentiment Analysis** and **Topic Modeling** models to extract meaningful insights from user interactions.
- Tools: Python, Scikit-Learn, NLTK, Gensim, SpaCy, Pandas, Jupyter Notebook, Seaborn, Matplotlib, Agile (Scrum).

TEACHING & LEADERSHIP

Télécom Paris and Télécom SudParis

Teaching Assistant

Sept. 2022 – Present

Palaiseau, France

- Over 100 hours of teaching Master (1 and 2) courses in Reinforcement Learning (theory and labs), Information Theory, Physical Layer Security and Wireless Communications.
- Supervised first year engineering student at Télécom Paris in their end of year projects.

Ecole Polytechnique

AI Trainer (Part-time)

June. 2025 – Present

Palaiseau, France

- Lectures and labs on Reinforcement Learning for LLMs (**RLHF** and **RLVR**).

OPEN-SOURCE

AtlasIA

Open-source contributor - Data core team

Jan. 2024 – Present

- Extension of the English to Moroccan darija **translation datasets**.
- Pioneered the Terjman model series, an English-to-Darija **translation model** outperforming well established models.
- Contributed to the curation of the first translation benchmark dataset on Moroccan darija, where Terjman was evaluated and outperformed 9B and 3.3B models in quantitative performance despite having significantly fewer parameters (240M).
- Worked on speech-to-text and Arabic dialects identification for multimodal LLM trainings.

Nt3awnou

Sept. 2023 – Nov. 2023

- Contributed to a Hugging Face collaborative platform for Morocco earthquake aid. The platform managed 2075 requests and 243 interventions, achieving the **5th most viewed space on Hugging Face** during peak periods.

EDUCATION

Télécom Paris

Ph.D. candidate

Palaiseau, France

Oct. 2021 – Dec. 2024

Worked on Information Theory and Reinforcement Learning for Future Wireless Networks with security constraints.

Insitut Polytechnique de Paris - Télécom Paris

Master 2 - Machine Learning, Communications, and Security (MICAS)

Palaiseau, France

Sept. 2020 – Sept. 2021

MICAS is a research oriented Master degree devoted to Artificial Intelligence, Information Theory, Wireless communication and Security. Achieved a GPA of 4.0, with Honors.

Mohammadia School of Engineers (EMI)

Engineering degree, Computer science

Rabat, Morocco

Sept. 2017 – Jul. 2020

Completed a major in AI and data science with an overall GPA of 4.0, graduating in the top 5% of the class, with highest Honors.

Ecole Nationale Supérieur d'informatique pour l'industrie et l'entreprise (ENSIIE)

Exchange program

Evry, France

Sept. 2019 – Jul. 2020

Machine learning, deep learning, data analysis. Achieved a GPA of 3.7, with Honors.

Preparatory classes PCSI/PSI*

Maths sup-spé (ranked 114th in Morocco)

Casablanca, Morocco

Sept. 2015 – Jul. 2017

A two-year intensive preparatory program for selective engineering school entrance exams in Morocco and France, focusing on Mathematics, Physics, Algorithmic, and Chemistry. Subsequently **admitted to the top engineering school nationwide**.

PROFESSIONAL & SOFT SKILLS

Soft Skills: Problem-Solving, Team Collaboration, Communication, Adaptability, Time Management

Languages: English (fluent), Arabic (native), French (fluent)

Technical: Mathematics, Algebra, Probability Theory, Optimization

Programming: Python, C/C++, Pytorch, vLLM, verl, Ray, llama-factory, TensorFlow, NLTK, Scikit-Learn, Pandas, OpenCV, SQL, MongoDB, Hadoop, Java

CI/CD: Git, Gitlab

Project management: Agile (Scrum)

Others: Linux, Streamlit, AWS, Google Cloud Platform, IBM Watson, Jupyter Notebook

RESEARCH CONTRIBUTIONS

[1] IEEE International Symposium on Information Theory (ISIT)

June 2023

A. Bounhar, M. Sarkiss and M. Wigger, "Mixing a Covert and a Non-Covert User".

[2] Neural Information Processing Systems (NeurIPS'W)

Dec. 2023

A. Bounhar, et al., "No Village Left Behind: A Moroccan Data-driven Platform for Effective Aid Coordination". This work was done in parallel of my Ph.D. and stemmed from a collaboration with Moroccan researchers and engineers following the catastrophic earthquake that hit Morocco in September 2023.

[3] IEEE International Conference on Communication (ICC)

June 2024

A. Bounhar, M. Sarkiss and M. Wigger, “Covert Multi-Access Communication with a Non-Covert User”.

[4] **IEEE International Symposium on Information Theory (ISIT)** Jul. 2024

A. Bounhar, M. Sarkiss and M. Wigger, “Covert Distributed Detection over Discrete Memoryless Channels”.

[5] **IEEE Global Communications Conference (Globecom)** to be presented, Dec. 2024

A. Bounhar, M. Sarkiss and M. Wigger, “Unveiling Covert Semantics: Joint Source-Channel Coding Under a Covert Constraint”.

[6] **IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)** (under review)

A. Bounhar, M. Sarkiss and M. Wigger, “RL-based Resource Allocation for Covert and Non-Covert NOMA Networks”.

[7] **IEEE Transactions on Information Theory (TIT)** (under review)

A. Bounhar, M. Sarkiss and M. Wigger, “Whispering Secrets in a Crowd: Leveraging Non-Covert Users for Covert Communications”.

[8] **IEEE Transactions on Information Theory (TIT)** (under review)

A. Bounhar, M. Sarkiss and M. Wigger, “Distributed Detection under Stringent Resource- and Covert Constraints”.

[9] **IEEE Transactions on Communications (TC)** (under review)

A. Bounhar, M. Sarkiss and M. Wigger, “Covert Capacity-Key Tradeoff over Discrete Memoryless Networks”.

[10] **IEEE Information Theory Workshop (ITW)** Oct. 2025

A. Bounhar, M. Sarkiss and M. Wigger, “Capacity-Key Tradeoff in Covert Communication”.

[11] **IEEE Information Theory Workshop (ITW)** Oct. 2025

A. Bounhar, M. Sarkiss and M. Wigger, “A Dichotomy for Distributed Detection With Limited Communication”.

[12] **IEEE Transactions on Communications (TC)** (forthcoming submission)

A. Bounhar, M. Sarkiss and M. Wigger, “PPO-Enhanced Resource Allocation and Channel Estimation for Covert and Non-Covert Energy-Harvesting NOMA Networks”.

[13] **ArabicNLP 2025** (under review)

G. Shang, H. Abdine, A. Chamma, A. Mohamed, M. Anwar, A. Bounhar, O. El Herraoui, P. Nakov, M. Vazirgiannis, E. Xing, “Nile-Chat: Egyptian Language Models for Arabic and Latin Scripts”.

MISCELLANEOUS

Interests and Hobbies: Photography, Fishing, Gym, Reading, History, Culture

Enjoy solving **competitive programming** like problems during free time.

Wining team of the **MoroccoAI Summer School Hackathon**, 2023 edition.

Wining team of the **ESSEC-EMI entrepreneurship prize**, 2019 edition.

Wining team of the **Hult Prize**, on campus competition at EMI 2018 edition and ranked 3rd in London in January 2019.

Head of the technical unit within the LinuxParty club (Computer Science club of EMI).

Club member EMINENCE: Cultural club of EMI.