Aymene Berriche

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EDUCATION

Université Grenoble Alpes - Ensimag   Grenoble, France
Master of Science in Artificial Intelligence and Data Science (Mosig); **Current year**   *Sep 2024 – Present*

École Nationale Supérieure d'Informatique (Top Engineering School)   Algiers, Algeria
Engineering Degree in Computer Science; **GPA 3.7**   *Sep 2019 – July 2024*

PUBLICATIONS

[Preprint] Pre-train With Backpropagation and Fine-Tune With a Bio-plausible Learning Rule

[Accepted at ECIR-25] Leveraging High-Resolution Features for Improved Deep Hashing-based Image Retrieval

[Master Thesis] Investigating the Impact of Bio-Inspired Deep-Learning Components in Image Retrieval Algorithms

[Accepted at WEBIST 2023] A Novel Hybrid Approach Combining Beam Search and DeepWalk for Community Detection in Social Networks

RESEARCH EXPERIENCE

Thales Group   Palaiseau, France
Research Intern   *March 2025 – Sep 2025*

- Working on the topic of Machine Unlearning, supervised by Dr. HÉLIOU Alice and Dr. THOUVENOT Vincent.
- Working on novel machine unlearning methods based on contrastive learning and rethinking benchmarking in the field.
- I'm also part of Thales's *Friendly Hackers* team, a white hat team working on Private AI solutions.

New York University Abu Dhabi   Abu Dhabi, UAE
Research Intern   *Jul 2023 – October 2024*

- Working with Prof.Riyadh Baghdadi on Bio-inspired Neural Networks.
- Developed a novel method for fine-tuning neural networks using a hybrid approach combining backpropagation and Sign-Symmetry learning rules, achieving better robustness and comparative performance to BP.

Laboratoire de Méthodes de Conception des Systèmes (LMCS)   Algiers, Algeria
Research Intern   *Jan 2023 – July 2023*

- This work was part of a research project conducted at the university, under the supervision of Prof. F. Benbouzid-Si Tayeb and Prof. M. Bessedik.
- The project resulted in a research paper accepted at the International Conference on Web Information Systems and Technologies (WEBIST).
- I successfully proposed a tree-search algorithm hybridized with a deep learning component to ensure efficacy. The results demonstrated that the proposed approach outperforms state-of-the-art methods for small and mid-sized networks.

AWARDS & ACHIEVEMENTS

High Honors Degree: Awarded to students who have graduated with a score greater than or equal to 16/20 by École Nationale Supérieure d'Informatique.

Data Competitions Winner: DataHack 2024, HAICK 2023

Africa to Silicon Valley AI Hackathon 3rd place Winner: Among more than 3000 teams, our startup won the 3rd place prize.

ALCPC 2022: Participated in the national collegiate programming contest and secured 3rd place, earning qualification for the regional contest.

Google Hash Code 2022: Achieved 1st place in the country (Algeria) during Google Hash Code 2022..

Relevant Courses

- **Statistical Learning:** from parametric to nonparametric models (Pr. Anatoli Juditsky, Pr. Sana Louhichi)

- **From Basic Machine Learning models to Advanced Kernel Learning** (Pierre Gaillard, Julien Mairal, Michael Arbel)

- **Offline Learning** (Massih-Reza Amini)

- **Online (Sequential) Learning** (Pierre Gaillard)

- **Reinforcement Learning** (Nicolas Gast)

- **Advanced Machine Learning** (Pr. Eric Gaussier)