Pierre Hollebèque

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As a first-year Master's student in Artificial Intelligence and Machine Learning at DTU, I am seeking a student job to gain practical experience and further develop my skills.

Education

Technical University of Denmark, MSc Human-Centered Artificial Intelligence — Sept 2025 - July 2027

- Double-degree with Centrale Lyon
- Specialization in Machine Learning, Deep Learning, UX Design, Social Graphs and Computational Tools for Data Science.

Centrale Lyon, General engineer — Sept 2023 – July 2027

GPA : 3.92/4 - Jury's congratulations

- General Courses : Mathematics, Physics, Computer Science, Telecommunication, Electronics, Mechanical Engineering and Economics.
- Specialization: Probabilities & Statistics, Genetic algorithms & Ant Colony Optimization (ACO), Image Sensing and Processing, Machine Learning, Constraint Logic Programming.

Lycée Chateaubriand, Preparatory classes (MPSI-MP*) — Sept 2021 – July 2023

- Two-year intensive French program preparing for the competitive entrance exams to top engineering schools.
- The curriculum focuses on Advanced Mathematics, Physics, Computer Science and French Literature & Philosophy with a strong emphasis on theoretical rigor. MP* corresponds to the second year, reserved for top students.

Experience

Generative AI Intern, NIJI – Rennes, France — Apr 2025 – Aug 2025

- **Design of an AI-powered Learning Solution**: Led the end-to-end conception of a corporate training tool designed to optimize memory retention and skill acquisition.
- **Neuroscience-based**: Conducted state-of-the-art research on cognitive learning methods to integrate evidence-based educational principles into the product features.
- **RAG Implementation**: Leveraged Retrieval-Augmented Generation (RAG) to transform static training repositories into an interactive and searchable knowledge base.
- **Agentic Workflow Automation**: Designed AI agent workflows to automatically generate question banks and assessment materials from existing documentation, streamlining content creation.
- **Adaptive Learning Algorithm**: Conceptualized a recommendation engine that personalizes the learning path by adjusting question difficulty according to the learner's proficiency level.

Projects

Feature alignment for unpaired infrared image translation in the microstructures of composite materials, DTU — Nov 2025 - Dec 2025

- **Infrared Super-Resolution**: Developed a **Cycle-GAN** solution trained on **unpaired data** to upscale low-resolution sensor outputs into high-fidelity images, significantly reducing hardware costs for physical experiment monitoring

Analysis of the Evolution of Alliances and Polarization in the French National Assembly, DTU — Nov 2025 - Dec 2025

- **Graph Theory & Network Analysis**: Constructed legislative graphs based on roll-call votes (14th-17th legislatures) to model political alliances.
- **Unsupervised Learning**: Applied Louvain community detection to identify evolving political blocs and quantify the erosion of the traditional left-right cleavage.
- **NLP & Text Mining**: Implemented an adapted TF-IDF approach to characterize the linguistic priorities of each identified community.

Research Project - State-of-the-art review of the Transformer architecture in AI, Liris Laboratory & Centrale Lyon — Oct 2024 - Apr 2025

- **Theoretical Research**: Conducted a comprehensive state-of-the-art review of Transformer models (**history, mechanics, fine-tuning, RAG**) and authored a 100+ page technical report on **ethical challenges**.
- **Practical Implementation**: Built a **Seq2Seq Transformer model** from scratch, **fine-tuned a BERT model**, and developed a **RAG** system using Mistral-7B.

Study Project - Modeling wildfire behavior and crowd dynamics, Centrale Lyon — Oct 2023 - May 2024

- **Simulation & Leadership**: Led a team of 6 to develop a simulation model for wildfire behavior and crowd dynamics, awarded the **Francis Leboeuf Prize** for Best Project (2023).

Skills

Programming Languages: Python, Matlab, SQL, Prolog

Machine Learning: PyTorch, TensorFlow, Hugging Face, Scikit-learn

Tools & Platforms: Git, Streamlit, Figma, HPC (Remote Supercomputing)

Languages: French (Native), English (C1)