

Hugo Vaillaud, Ph.D.

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AI Research Engineer

Experience

Thales DMS, Élancourt — Research Engineer (Ph.D. student)

Feb 2020 – Jan 2024

- Development of planning algorithms for target search with a fighter jet's radar (FCAS project)
- Research and implementation of stochastic optimization and deep reinforcement learning algorithms with 33% performance improvement on average compared to existing industry solutions.
- Design of benchmarks and optimization criteria.
- Implementation of a simulator using the Godot game engine.

Personal Project – [Camera Calibration for Autonomous Vehicle](#)

May – Aug 2025

- Implemented a complete Computer Vision pipeline for real-time camera calibration (Comma.ai Challenge), combining optical flow (OpenCV) with semantic segmentation (YOLOv8).
- Designed a Bayesian-optimized filtering method on a resource-constrained device, achieving a final error score of 8.58% on the validation dataset.

Personal Project – [Job-Seeking Agentic Workflow](#)

Oct. 2025 – Present

- Built a tool that automates job offer search and review based on my preferences. It can also generate tailored resume and cover letter for each job offer, grounded with my personal information and experience. Tool used: LLMs, agentic workflows and LangChain.

IBM France, Bois-Colombes — Junior Data Science Consultant

Feb 2019 – Jul 2019

- Development of a predictive maintenance tool for a major player in the french oil and gas industry.
- Implementation of a recurrent deep learning model and data preparation pipeline.

Skills

Expertise: Machine learning, Deep learning, Operations research, Optimization, planning algorithms, reinforcement learning, data science, target search, computer vision, Agentic workflows

Programming Languages: Python (advanced), Javascript, C/C++, \LaTeX , SQL

Technologies: PyTorch, JAX (GPU), WandB, Godot, parallel computing, Git

Languages: French (native), English (bilingual), Spanish (fluent)

Education

Ph.D. - Sorbonne University, Paris 5e

2020 – 2023

"Algorithms for the Search of a Moving Air Target with a Radar Onboard an Airborne Platform"

Engineering Degree - École Centrale d'Électronique, Paris

2014 – 2019

Master in Data Science and Analytics

Publications

- [1] Hugo Vaillaud et al. "Target search with a radar on an airborne platform". In: *FUSION*. 2023.
- [2] Hugo Vaillaud et al. "Target Search with an Allocation of Search Effort to Overlapping Cones of Observation". In: *FedCSIS*. 2023.