Aissam Djahnine

Machine Learning Engineer · PhD, Computer Vision & Medical AI

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Machine Learning Engineer with 6 years of deep learning on medical images, from an industrial PhD with Philips (5 peer-reviewed papers, 2× national AI challenge winner) to production in an FDA-regulated Software as a Medical Device (SaMD; 50k scans/day, ~80 models).

Experience

Dental Monitoring — Paris, France
AI Research Engineer — *Oct 2024 – Present*

- Led two clinical models from feasibility to production: attachment loss (classifier on ~2M intraoral photos, 90% less manual validation at 93% sensitivity) and seat/unseat (DINOv2 ViT fine-tuned with LoRA on ~2M images, −10% reviewer workload). Introduced workload-based threshold selection, now the team's standard.
- Core maintainer of the production GPU inference server (Triton, 49 models): shipped 7 releases, including a GPU-shortage circuit breaker that keeps only the stronger of redundant models (~10% less GPU load); benchmarked TensorRT, FP16 and INT8; root-caused 9 production incidents, several before they reached patients.
- Built the model registry, the single source of truth for ~80 models across 2D, mobile and 3D: the whole pipeline now reads one validated, versioned Pydantic schema (thresholds, dependencies, FDA regulatory metadata) and pulls serving artifacts from MLflow, so adding a model is a config entry.

Philips Health Technology Innovation France — Paris, France
Machine Learning Engineer, Industrial PhD (CIFRE) — *Jul 2021 – Sep 2024*
Supervisors: Pr. Loic Boussel, Dr. Alexandre Popoff, Dr. Nicolas Villain

- Researched 3D pathology detection in CT on a 40k-scan multi-hospital database: contrastive self-supervised pretraining (SimCLR) raised 4-pathology F1 from 0.79 (ImageNet init) to 0.94, with 3D localization of findings.
- Developed CT-3DFlow, an unsupervised, position-conditioned 3D normalizing flow trained on healthy scans only that produces 3D anomaly maps and outperformed 8 anomaly-detection methods.
- Published 5 peer-reviewed papers (3 first-author), including in Medical Physics and Diagn. Interv. Imaging.
- Won 1st place twice at the French Society of Radiology AI challenge with the Philips–HCL team (JFR 2022 pulmonary embolism, JFR 2023 pancreatic mass), with 40+ teams across both editions, including GE HealthCare and Guerbet.

Hospices Civils de Lyon (HCL) — Lyon, France
Pre-doctoral Research Fellow — *Feb 2021 – Jul 2021*

- Developed a U-Net that segments and quantifies skeletal muscle in CT at the L1, L2 and L3 vertebral levels for sarcopenia assessment, now used as a clinical assistance tool at HCL.
- Generated L3 muscle measurements with the model for eCAPRI, a post-TAVI mortality score that incorporated them and outperformed CAPRI and EuroSCORE (European Radiology, 2025).

General Electric Healthcare — Buc, France
Machine Learning Intern — *Mar 2020 – Aug 2020*
Supervisors: Pr. Serge Muller, Dr. Andrei Petrovskii

- Extended neural architecture search (PC-DARTS) with a cell-initialization constraint and applied it to 5-class mammography classification (DDSM), beating the research team's hand-designed model (78.1% vs 75.0% accuracy).

Institut Pasteur — Paris, France
Machine Learning Research Assistant — *Sep 2019 – Feb 2020*
Supervisors: Pr. Isabelle Bloch, Dr. Vannary Meas-Yedid

- Built a CycleGAN model that segments cells in microscopy images, reaching a mean Dice of 0.93 on U2OS cells and 0.72 on harder retinal epithelium images trained without paired image–mask annotations.

University of Waterloo | Sorbonne University — Ontario, Canada
Research Intern, BiomedInnov Exchange Program — *May 2019 – Aug 2019*
Supervisor: Pr. Hamid Kokabi

Education

Université Claude Bernard Lyon 1 – CREATIS Lab (MYRIAD team) — Lyon, France
Ph.D. in Computer Vision & Medical AI — *Jul 2021 – Sep 2024*

- Thesis: Automated Pathology Detection in Conventional CT Scans. CIFRE industrial doctorate with Philips Health Technology Innovation France and HCL.

Sorbonne University & Télécom Paris — Paris, France
Master's Degree in Computer Science, IMA track (Images, Computer Vision & Graphics) — *2018 – 2020*
Supervisors: Pr. Isabelle Bloch, Pr. Dominique Béréziat

Sorbonne University (ex. Pierre et Marie Curie University) — Paris, France
Bachelor's Degree in Electrical Engineering & Automation (EEA) — *2017 – 2018*

National Polytechnic School of Oran (ENPO) — Oran, Algeria
Classes Préparatoires aux Grandes Écoles (CPGE) — *2014 – 2017*

Projects

ECOSARDS (ecosards.com) | *Founder & Developer, side project* May 2026 – Present

- Built and launched a voice-first AI simulator for French medical students preparing oral clinical exams (ECOS/OSCE): real-time AI patients, automated feedback, and two-person practice sessions.
- Stack: TypeScript, React, Node.js/Express, PostgreSQL, GCP (Vertex AI, Cloud Storage), Gemini Live, OpenAI, LiveKit, Stripe.

llmfit (open source, 38k stars on GitHub) | *Contributor* 2026

- Contributed 4 merged PRs to llmfit, a Rust CLI that matches LLMs to local hardware: model comparison, MoE throughput estimates based on active parameters, and context-length memory caps.

Skills

Programming Languages: Python, Bash, MATLAB, C/C++

Deep Learning & AI: PyTorch, TensorFlow/Keras, scikit-learn, Hugging Face, NumPy, Pandas

Methods: 3D medical imaging (CT, spectral CT, mammography, microscopy; DICOM), detection & segmentation, self-supervised & weakly supervised learning, generative models (GANs, normalizing flows), AutoML/NAS, NLP (BERT), LLMs, PEFT (LoRA/QLoRA)

MLOps, Cloud & Dev Tools: AWS (S3, EC2), Docker, Git, GitLab CI, DVC, MLflow, Sentry, Pydantic, ONNX, TensorRT

Languages: Arabic & Tamazight (native), French (bilingual), English (advanced)

Publications

- Weakly-supervised learning based pathology detection and localization in 3D chest CT scans. *Medical Physics, 2024 – First author.*
- Detection and severity quantification of pulmonary embolism with 3D CT data using an automated deep learning-based artificial solution. *Diagnostic and Interventional Imaging, 2024 – First author.*
- BERT-based natural language processing analysis of French CT reports: application to the measurement of the positivity rate for pulmonary embolism. *Research in Diagnostic and Interventional Imaging, 2023 – Second author.*
- CT-3DFlow: Leveraging 3D normalizing flows for unsupervised detection of pathological pulmonary CT scans. *arXiv preprint, 2024 – First author.*
- eCAPRI: a novel tool combining clinical and imaging data for post-TAVI mortality prediction. *European Radiology, 2025 – Fourth author.*
- Tailored 3D CT contrastive pretraining to improve pulmonary pathology classification. *16th IEEE International Conference on Signal Processing (ICSP), Beijing, China, 2022 – First author.*

Honors & Awards

- **1st place**, JFR 2023 data challenge (French Society of Radiology): pancreatic lesion detection and characterization in CT scans (Challenge paper, Winning solution paper).
- **1st place**, JFR 2022 data challenge (French Society of Radiology): pulmonary embolism detection in 3D CT scans (Challenge paper, Our solution paper).
- **59th of 1,009 participants (top 6%)**, solo, DaT Parkinson's Challenge (DrivenData, French Society of Nuclear Medicine, 2026): classifying DaT SPECT scans as normal or abnormal for parkinsonian syndromes.

Academic Service, Teaching & Training

20th IEEE International Symposium on Biomedical Imaging (ISBI 2023) | *Reviewer* *Dec 2022*

Sorbonne University (ex. Pierre et Marie Curie University) Paris, France
Academic Tutor *Oct 2018 – Apr 2019*

- Tutored undergraduate students in academic projects and lab sessions covering mathematics, linear algebra, analog/digital electronics, and programming (C, MATLAB, VHDL).

Oxford Machine Learning Summer School (OxML), ML x Health track Oxford, United Kingdom
Summer school *Jul 2023*

Activities & Interests

Top Aéro, Sorbonne University Aeronautics and Aerospace Association Paris, France
Student association *Oct 2018 – Dec 2019*

- Contributed to a team developing autonomous solar drones, focusing on embedded software programming and electronic system design.

Sports: football, running (Milano21 half marathon, 2025; 10K races: Odyssea Paris 2025, Run for Planet 2025, Parilly 10K 2024), biathlon (Gravity Race, 2023).