

Thibaut CHAUFFIER

Senior ML Research Engineer | Computer Vision & Generative AI



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Profile

Senior ML Research Engineer bridging deep research and production impact — published author (ICCV 2025, Oral), inventor (5 granted patents), and technical lead across research and engineering teams. 8+ years advancing generative models, 3D scene representations, and self-supervised vision systems, with rare end-to-end ownership: from novel architecture design to low-latency systems serving millions globally across robotics, UAVs, and beauty tech.

Research interests: generative models (diffusion, flow-based), 3D Gaussian representations & NeRF, efficient self-supervised vision transformers, multimodal learning.

Publications & Patents

- *Locally Controlled Face Aging with Latent Diffusion Models*. ICCV 2025 P13N Workshop (Oral). Co-author. [arXiv:2507.21600](https://arxiv.org/abs/2507.21600)
- **5 granted patents** spanning ML-driven robotics (active learning self-calibration), computer vision (skin tone detection & matching), and embedded AI inference systems.

Experience

Senior ML Research Engineer – Technical Lead, AI & Computer Vision, **L'Oréal** – Paris, FR

Jan 2022 – Today

Research Work:

- Designed and trained a custom Latent Diffusion model for **controllable face aging**; efficient spatial conditioning enabling real-time generation on iPad Pro. (ICCV 2025 Oral)
- Built novel **2D/3D Gaussian Splatting** + **FLAME** pipeline for high-fidelity facial capture and reconstruction, optimized for production deployment.
- Developed a **foundation model** for semantically rich facial representations, enabling zero-shot transfer across multiple downstream tasks.

Production Work:

- Developed a low-latency, CNN-based skin tone detection and foundation shade matching system (*eShadefinder*), deployed globally across 9 L'Oréal brands on mobile and web.
- Architected a high-performance **model serving** pipeline (FastAPI, Docker, ONNX) achieving sub-100ms inference for real-time product recommendations at scale.
- Built **edge inference** formulation prediction models for *YSL Rouge-Sur-Mesure*, enabling real-time customer-designed lipsticks under strict embedded constraints.

Mechatronics Engineer, **L'Oréal** – Paris, FR

Aug 2017 – Jan 2022

- Led the design of an ML-powered self-calibration system for a formulation robot, using **Gaussian Process Regression with active learning**. Reduced material waste by 71% and downtime by 83%.
- Restructured the embedded software team and led safety compliance certification efforts for robotic systems.

Mechatronics Engineer, Civic Drone – Paris, FR

Jan 2016 – Aug 2017

- › Engineered a real-time fall and tilt detection system for UAVs using sensor fusion (Kalman filtering) with a multi-sensor array.
- › Boosted UAV propulsion efficiency by 44% and cut power usage by 10% through ML-based optimization and mechanistic modeling.

Education

Université de Technologie de Compiègne (UTC) - Sorbonne University Alliance,
Engineering degree in System Engineering (MSc.)

Sept 2010 - Aug 2015

Coursework: Computer Science, Mathematics, Statistics, Physics, Mechatronics.

Skills

ML/AI: Transformers, fine-tuning (PEFT, LoRA), Generative Models (Diffusion, Flow-based, GANs), Self-Supervised Learning, multimodal models, 3D Vision (NeRF, Gaussian Splatting).

Deep Learning Frameworks: PyTorch, TensorFlow, HuggingFace libraries (Transformers, Diffusers).

Performance & Efficiency: CUDA (basics), ONNX, model serving, edge inference, MLOps, distributed training, model distillation, quantization/pruning, GCP/VertexAI, Docker, CI/CD.

Programming: Python (expert), Rust (intermediate).

Management: Project management, Team leadership, Agile.

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

Open Source & Writing

- › Design and train a transformer-based chess engine using the Lychess database: [🐙 ChessTransformer](#)
- › Created a Rust raytracer capable of running in realtime on a web browser: [🐙 rust-raytracer](#)
- › Active GitHub contributor: [🐙 github.com/tchauffi](#)
- › Technical articles on generative AI and applied ML: [medium.com/@thibaut.chauffier](#)