

Lais Isabelle Alves dos Santos

📍 Belo Horizonte, Brazil | ✉️ laisisabelleas@gmail.com | in liadsantos | 🌐 liadsantos

Education

Télécom Paris - Institut Polytechnique de Paris

Sept 2022 – Sept 2024

MSc in Artificial Intelligence, GPA: 3.53/4

Paris, France

Double degree program awarding a Master of Science in Artificial Intelligence.

Thesis: Controlled Face Clinical Signs Image Generation with Latent Diffusion Models (Grade: 18 - Excellent)

Advisors: Sileye O. Ba, Julien Despois

Reviewer: Loïc Le Folgoc

Honors: Télécom Paris Alumni Fund: International excellence scholarship

Federal University of Minas Gerais (UFMG)

Feb 2019 – Dec 2025

BSc. in Control and Automation Engineering, Grade: 84.7/100

Belo Horizonte, Brazil

Thesis developed in France during Double Degree Program.

Research Experience

Uncertainty in Artificial Intelligence (UAI) Lab

Apr 2025 – Present

Deep Learning Researcher

Belo Horizonte, Brazil

- Researching advanced methods for an oil and gas company (Petrobras) to translate seismic imaging data into temporal geological well information
- Developed a multimodal, transformer-based model to predict well time-series data directly from seismic inputs, leveraging synthetic datasets and achieving state-of-the-art results; now validating the approach on real-world data with strong potential for academic publication
- Delivering significant financial impact by enabling accurate predictions that can save millions of reais in drilling costs while extracting petroleum insights solely from seismic data.
- Conducting innovation research to forecast COVID-19 cycle threshold (Ct) time series-data (usually unavailable) in Brazil, using public data, such as confirmed case counts and death counts
- Applied Generative Additive Models (GAMs) to assess whether simpler models can accurately predict Ct value curves. Currently exploring more precise deep learning models.
- Advisors: Pedro O. S. Vaz-De-Melo (UFMG), William R. Schwartz (UFMG), Flavio Figueredo (UFMG), Michel F. C. Haddad (Queen Mary London)

L'Oréal Research and Innovation

Apr 2024 – Sept 2024

Machine Learning Research Scientist Intern

Paris, France

- Conducted an in-depth literature review on Diffusion Models to develop a generative model for controlled face aging and rejuvenation
- Fine-tuned Latent Diffusion Models to develop a novel architecture capable of locally controlling face wrinkle generation, accounting for ethnicity-specific characteristics
- Improved generative performance with a 22% lower FID score compared to previous GAN-based method
- Resulting work led to publication in ICCVW 2025 (P13N) with an oral presentation.
- Advisors: Sileye O. Ba (L'Oréal), Julien Despois (L'Oréal)

COMIN and Télécom Paris

Oct 2023 - Mar 2024

Master Innovation Research Project Student (PRIM)

Paris, France

- Developed a facial recognition system using transfer learning on the VGG16 architecture to verify user identities, achieving 95% accuracy on the internal dataset.
- Advisor: Dany El Oubari (Comin)
- Reviewer: Marc Jeanmougin (Télécom Paris)

Publications

LIAD Santos, J Despois, T Chauffier, SO Ba, G Palma (2025). Locally Controlled Face Aging with Latent Diffusion Models. *IEEE/CVF International Conference on Computer Vision (ICCV) Workshops.*

Projects

Denoising Diffusion classifier-free guidance with MNIST (Jun 2024 - Set 2024)

GitHub Code

- Developed from scratch a UNet to implement the denoising diffusion pipeline and generate MNIST images unconditionally and conditioned on a class label.

Variational Auto Encoders for Cardiac Shape Modeling (Jun 2023)

GitHub Code

- Implementing a convolutional Variational Autoencoder (VAE) model from scratch to analyze the latent space of a cardiac shape model, following established research on convolutional VAEs.

Three sport games in a Virtual Reality room (Jun 2023)

GitHub Code

- Final project of the Interaction and Graphics Track at Télécom Paris. Designed and implemented a VR-based interactive environment to study human perception and embodiment.
- Built a virtual room in Unity featuring three interactive sports tasks (golf, tennis, basketball), enabling controlled comparison between virtual and real-world experiences. The system was used in a user study to evaluate sensory realism and participants' ability to distinguish and recall virtual versus real interactions.

Kaggle Challenge - Cardiac pathology prediction (Mar 2023 - Apr 2023)

GitHub Code

- Applied various ML classification algorithms in Python with Scikit-learn to correctly predict cardiac pathologies in a Kaggle competition
- Achieved 86% accuracy using Support Vector Machines (SVMs) after data processing and feature extraction

Data acquisition for energy-efficiency (May 2019 - Nov 2019)

- Developed and optimized the telemetry system for a competitive energy-efficiency vehicle team using C/C++, enabling real-time data capture and processing to support driving strategy
- Achieved a vehicle efficiency of 149 km/kWh in international competition by integrating actionable insights into the system, allowing the pilot to adjust driving behavior based on live performance metrics

Skills

- **Programming languages:** Python, C/C++, JavaScript, HTML
- **Frameworks:** Pytorch, Pandas, Scikit-Learn, Tensorflow, OpenCV
- **Languages:** Portuguese, English, French