LIAM MOROY

Ph.D. candidate in Signal and Image Processing via Artificial Intelligence.
Available from November 2025.

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SUMMARY

Ph.D. candidate in Deep Learning at Université Paris-Saclay within the DTIS team at ONERA in Palaiseau. My work focuses on solving highly ill-posed inverse problems using deep learning, applied to tomographic imaging.

EDUCATION

[Ongoing] Ph.D. – ONERA, DTIS/MIC group

- Université Paris-Saclay, STIC group
- Generative AI (diffusion models) for solving inverse problems in imaging, applied to tomographic imaging.
- Supervised by J.-F. Giovannelli, F. Champagnat, and G. Bourmaud.

2022 - 2025 Paris, France

Master of Science, Electronics Engineering, Specialized in Signal Processing

- Enseirb-Matmeca, Bordeaux INP

2019 - 2022 Bordeaux, France

Master of Science and Technology – Complex Systems Engineering

- (concurrent with the above degree)
- University of Bordeaux.

2022 Bordeaux, France

Bachelor of Science, Electronics Engineering

- Enseirb-Matmeca, Bordeaux INP

2017 - 2020 Bordeaux, France

RESEARCH ACTIVITIES

Publications:

- “Evaluating the Posterior Sampling Ability of Plug&Play Diffusion Methods in Sparse-View CT“, poster session, ICASSP 2025, L. Moroy, G. Bourmaud, F. Champagnat, J.-F. Giovannelli
- “On the Posterior Gap in Plug&Play Diffusion Methods for Sparse-View CT“, submitted to IEEE JSTSP Special Issue on High-Dimensional Imaging: Emerging Challenges and Advances in Reconstruction and Restoration, L. Moroy, G. Bourmaud, F. Champagnat, J.-F. Giovannelli

Oral Presentations:

- “Evaluating the Posterior Sampling Ability of Plug&Play Diffusion Methods in Sparse-View CT”, GdR IASIS: Advances in Learning-Based Image Restoration, 09 Dec 2024, Henri Poincaré Institute, Paris.
- "Plug-and-Play Diffusion Methods for Posterior Sampling in Tomographic Reconstruction", AI in IMS, 23 Jan. 2025, Bordeaux

ACADEMIC EXPERIENCE

University of Bordeaux

- Master ISC – ISIS track – Year 1: Teaching assistant for labs on introduction to noise and random signals (2023/24 & 2024/25).

ENSEIRB-MATMECA engineering school

- Engineering cycle – TSI track – Year 3: Teaching assistant for practicals on generative artificial intelligence via diffusion models (2024/25).
- Engineering cycle – Electronics track – Year 1: Teaching assistant for labs and projects in C/C++ programming (2023/24 & 2024/25).

PROFESSIONAL EXPERIENCE

R&D Internship – *Deep Learning* for tomographic reconstruction of compressible flows

ONERA (DTIS/MIC)

Feb. 2022 - Aug. 2022 [6 months] Palaiseau, 91120

- Characterization of prior distributions via learning of statistical and/or generative models for Bayesian inversion from a small database.

Python | Pytorch/CUDA | Generative AI | Bayesian Inversion

R&D Internship – *Deep Learning* for nebula removal in astronomical images

Astrophysics Laboratory of Bordeaux (LAB) & IMS Laboratory

Jul. 2021 - Sep. 2021 [3 months] Bordeaux, 33000

- Training a regressor from noisy ground truths and transfer learning from synthetic datasets.

Python | Pytorch/CUDA | C/C++ | Image Processing

Internship – FPGA implementation of an encryption algorithm

IMS Laboratory (Circuit Design/CSN)

Jul. 2020 - Aug. 2020 [2 months] Bordeaux, 33000

- Implementation of the AES (Advanced Encryption Standard) algorithm for a secure RISC-V processor architecture on a Zynq 7020 SoC.

Verilog | VHDL | C/C++ | Cryptography

SKILLS

- **Programming**: Python (advanced), C (advanced), C++ (intermediate)
- **Languages**:
  - French (native)
  - English (TOEIC 950 – fluent)
  - Spanish (B1 – intermediate)
  - Japanese (beginner)

OTHER

- **Robotics**:
  - Active member of Eirbot association (2019–2022), treasurer in 2021.
  - Participation in the French Robotics Cup:
    - Eirbot Team (2021)
    - Pokibot Team (2024)
- **Cybersecurity**: self-training on the TryHackMe platform (2024)
- **Sports**: climbing, running