





PIERRE FERNANDEZ

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EXPERIENCE

Meta, Research Scientist

2024 – present

FAIR team

Paris, France

Primary contributor to moderation and AI safety research

Meta & Inria, PhD student

2021 – 2024

FAIR team & Linkmedia team at Inria

Rennes & Paris, France

Primary contributor to moderation and AI safety research

- Developed the image watermarking algorithm used by Meta's generative model (100k daily users) and Instagram moderation
- Developed the watermarking algorithm used by audio models (Seamless and Audiobox, expected to be used in production)
- First author of publications in top venues including ICCV, ICASSP, ICML and ICLR
- Miscellaneous: developed the video and image classification fine-tuning and evaluation for big vision models (DINOv2)

Meta, AI Research Intern

May 2021 – Sep. 2021

FAIR Paris team, advised by Hervé Jégou, Matthijs Douze and Alexandre Sablayrolles

Remote, France

- Research on image watermarking using pretrained self-supervised image models, led to an oral presentation at ICASSP

Dassault Systemes, Research Intern

Apr. 2020 – Aug. 2020 & Sep. 2021 – Dec. 2021

World leader company in 3D design & engineering software

Vélizy, France

- Research on differentiable physics for robotics and structural optimization (using Jax and Taichi)
- Topics: automatic differentiation, physics simulation, topology optimization, genetic algorithms (NEAT, CMA-ES)

Incepto Medical, Software Engineer Intern

Jul. 2019 – Sep. 2019

Start-up developing and gathering AI applications for medical imaging

Station F - Paris, France

- Developed a visualization tool to analyze annotations and results of deep learning algorithms (in AngularJS)

EDUCATION

Meta & Inria, PhD in Mathematics and Computer Science

2021 – present

Advisors: Teddy Furon (Inria) & Hervé Jégou (prev. FAIR), Matthijs Douze (FAIR)

Rennes & Paris, France

Paris-Saclay University, MSc in Mathematics, Vision and Learning ("MVA")

2020 – 2021

World's best university in Mathematics in Shanghai's ranking 2021 - with Highest Honors, GPA: 4.0/4.0

Paris, France

École des Ponts ParisTech, Double Degree: Masters in Mathematical Engineering

2020 – 2021

Relevant coursework: Law, Accounting, Project with Renault: OCR integration in cars navigation system

Remote, France

École polytechnique, BSc & MScT in Artificial Intelligence and Visual Computing

2017 – 2021

France's best engineering school - with Highest Honors, GPA: 3.95/4.0

Palaiseau, France

Awards:

- Outstanding Investment & Outstanding Leadership for involvement in school community life
- Research Internship Award in Computer Science for my first internship at Dassault Systemes (top 5%)
- Ranked 4th at the entrance exams

Stanislas, Physics and Chemistry

2015 – 2017

Two-year intensive program for the entrance exams to top French Engineering schools

Paris, France

PUBLICATIONS

– First author publications

Watermarking Makes Language Models Radioactive,

January 2024

Tom Sander*, Pierre Fernandez*, Matthijs Douze, Alain Durmus, Teddy Furon

Pre-print (under review)

Proactive Detection of Voice Cloning with Localized Watermarking,

January 2024

Robin San Roman*, Pierre Fernandez*, Alexandre Defossez, Teddy Furon, Tuan Tran, Hady Elsahar

International Conference on Machine Learning (ICML)

Functional Invariants to Watermark Large Transformers, <i>Pierre Fernandez, Guillaume Couairon, Teddy Furon, Matthijs Douze</i> International Conference on Acoustics, Speech and Signal Processing (ICASSP)	September 2023
Three Bricks to Consolidate Watermarks for Large Language Models, <i>Pierre Fernandez, Antoine Chaffin, Karim Tit, Vivien Chappellier, Teddy Furon</i> International Workshop on Information Forensics and Security (WIFS) - Best student paper	August 2023
The Stable Signature: Rooting Watermarks in Latent Diffusion Models, <i>Pierre Fernandez, Guillaume Couairon, Hervé Jégou, Matthijs Douze and Teddy Furon</i> International Conference on Computer Vision (ICCV)	March 2023
Active Image Indexing, <i>Pierre Fernandez, Hervé Jégou, Matthijs Douze and Teddy Furon</i> International Conference on Learning Representations (ICLR)	October 2022
Watermarking Images in Self-Supervised Latent Spaces, <i>Pierre Fernandez, Alexandre Sablayrolles, Teddy Furon, Hervé Jégou and Matthijs Douze</i> International Conference on Acoustics, Speech and Signal Processing (ICASSP) – <i>Other publications</i>	May 2022
Seamless: Multilingual Expressive and Streaming Speech Translation, <i>Seamless Communication et al.</i> CoRR, arXiv	December 2023
A Handbook of Self-Supervised Learning, <i>Randall Balestriero et al.</i> CoRR, arXiv	March 2023
DINOv2: Learning Robust Visual Features without Supervision, <i>Maxime Oquab et al.</i> Transactions on Machine Learning Research (TMLR)	March 2023

ADDITIONAL INFORMATION

Languages	French, Spanish (Working proficiency), English (Working proficiency: TOEFL 110/120 - TOEIC 970/990)
Programming	Python (PyTorch, Jax), JavaScript (React, AngularJS, ThreeJS, D3), HTML, SQL ⁽⁻⁾ , C++ ⁽⁻⁾ , Java ⁽⁻⁾
Sport	Tennis, Climbing, Running
Reviewer	CVPR (2022, 2023), IEEE TIFS, Springer IJCV, Springer Multimedia Forensics
Misc.	Jury for GenAI start-up pitch (VivaTech 2023), Advisor for Kartoan.ai (Station F acceleration program)