

# PIERRE FERNANDEZ

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## EDUCATION

**Université de Rennes 1**, *PhD in Mathematics and Computer Science* **2022 – present**  
*Advisors: Teddy Furon (Inria) & Hervé Jégou, Matthijs Douze (Meta AI)* *Rennes & Paris, France*

**Paris-Saclay University**, *MSc in Mathematics, Vision and Learning ("MVA")* **2020 – 2021**  
*World's best university in Mathematics in Shangai's ranking 2021 - with Highest Honors, GPA: 4.0/4.0* *Paris, France*

Relevant coursework:

- Convex optimization, Kernel methods, RL, Sequential learning, Graphs in ML, Computational statistics
- 3D Computer vision, Object recognition, Point clouds, Deep learning in practice, Digital humanities meet AI

**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
- Research Internship Award in Computer Science for my first internship at Dassault Systemes (top 5%)

Relevant coursework:

- Machine & Deep Learning, Statistics, Markov Chains, Random Processes, Fundamentals of Probabilities
- Computer vision, Shape analysis, Computer graphics, Data visualization, Topological data analysis
- Molecular biology and genetic information, Pathologies and therapeutic strategies, Neuroscience

**Stanislas**, *Physics and Chemistry* **2015 – 2017**  
*Two-year intensive program for the entrance exams to top French Engineering schools* *Paris, France*

## WORK & RESEARCH EXPERIENCE

**Meta AI**, *CIFRE PhD student* **2022 – present**  
*Meta AI Paris team & Linkmedia team at Inria* *Rennes & Paris, France*

Research on Machine Learning and content protection (watermarking, data security, privacy, etc.)

**Meta AI**, *AI Research Intern* **May 2021 – Sep. 2021**  
*Meta AI Paris team, advised by Hervé Jégou, Matthijs Douze and Alexandre Sablayrolles* *Remote, France*

- Robust image watermarking in self-supervised latent spaces, led to a publication at ICASSP 2022
- Topics: watermarking, steganography, self-supervised learning, computer vision

**Dassault Systemes**, *Research Intern* **Apr. 2020 – Aug. 2020 & Sep. 2021 – Dec. 2021**  
*World leader company in 3D design & engineering software* *3DS Campus - Vélizy, France*

- Research on design generation and learning of autonomous virtual-soft-robots (Taichi, PyTorch)
- Research on differentiable physics for robotics and structural optimization (Jax, Taichi, PyTorch)
- 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 (AngularJS)
- Discussed with radiologists and data scientists to establish the needs of the tool

**NeuroSpin**, *Neural Representation of Temporal Sequences (Neuroscience)* **Aug. 2018 – May. 2019**  
*Scientific group project at Polytechnique - team of 6 students - 1 day/ week* *Saclay, France*

Goal: Understand how the brain encodes temporal sequences and patterns

- Conceived a grammar encoding of sequences, develop a smartphone app experiment (ReactJS), analyzed the results
- Nominated for best project (top 10%)

**Military Experience - Prytanée National Militaire**, *Section Head* **Sep. 2017 – Apr. 2018**  
*School and preparatory class for future officers in the French army* *La Flèche, France*

- Led 2 sections of 25 students and conducted Physics and Chemistry courses and exercises

## TECHNICAL SKILLS

**Languages** French, Spanish (Working proficiency), English (Working proficiency: TOEFL 110/120 - TOEIC 970/990)  
**Programming** Python (PyTorch, Jax, Taichi), JavaScript (React, AngularJS, ThreeJS, D3), HTML, SQL<sup>(-)</sup>, C++<sup>(-)</sup>, Java<sup>(-)</sup>

## ADDITIONAL INFORMATION & EXTRACURRICULAR

**Sport** Tennis, Climbing, Running  
**Education** Maths oral examiner (2h/ week) at Stanislas in 2018-2019 & Correction of 100 algebra exams in May 2018  
**Social action** I was president of a school organization that organized a humanitarian trip to Tahiti  
One-and-a-half-month summer humanitarian internship in Papeete at FACE Polynesia  
**School clubs** I was vice-president of the graphic design organization of Polytechnique  
I organized of a discovery trip to state-of-the-art Israeli start-ups, universities and R&D centers