

# Constance Ferragu

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LinkedIn

## Education

- Sept 2022 – **Princeton University**, *M.S.E. in Computer Science*.  
Present Advisor: *Dr. Adjai Bousso Dieng*
- Sept 2019 – **École Polytechnique**, *B.S., Mathematics and Computer Science*.  
July 2022 GPA: 4.0  
*Computer Science Coursework*: Computer Programming, Design & Analysis of Algorithms, Web Programming, Object-Oriented Programming, Logic and Proofs, Formal Languages, Machine Learning, Computer Architecture, Concurrent and Distributed Systems, Complexity.  
*Mathematics Coursework*: Multivariable/Differential Calculus, Linear Algebra, Modern Algebra, Analysis, Discrete Math, Numerical Analysis, Mathematical Modeling, Probability, Statistics, Quadratic Forms, Euclidean and Hermitian Spaces, Convex Optimization and Optimal Control, Topology, Measure Theory.
- Sept 2021 – **University of California, San Diego**, *Exchange Semester*.  
Dec 2021 *Coursework*: Algebraic Combinatorics, Optimization for Data Science, Machine Learning II, Graduate Computer Vision I
- June 2020 – **University of Chicago**, *Summer Semester*.  
Aug 2020 Quantitative Portfolio Management and Algorithmic Trading Summer Session

## Technical Skills

- Coding & Tools MATLAB, Python, C, C++, JAVA, HTML, CSS, JS, Coq, OCaml, ASM, TensorFlow, PyTorch, Scikit-Learn, Numpy, SciPy, Keras, Pandas, WandB, Torchvision, Clip, OpenCV, Binance
- Language French, *Fluent*. English, *Fluent*.

## Research Experience

- June 2021 – **Research Engineer Intern**, INSTADEEP, Paris, France.  
Aug 2021 Supervisors: *Philomène Chagniot, Thomas Lecat*  
Replicated OpenAI's few-shot linear probe model. Built a contrastive learning image classification model based on OpenAI's CLIP Algorithm. Few-shot results are promising and indicate the model could compete with state-of-the-art models.
- Jan 2022 – **Research Intern**, INSTADEEP, Paris, France.  
April 2022 Supervisors: *Philomène Chagniot, Vincent Coyette, Thomas Lecat*  
Incorporated our contrastive learning model in a N-way k-shot setup. Built baselines for the semantic information and the visual information. Our results surpass the current benchmarks for 5-way 1-shot and 5-way 5-shot setups.
- June 2017 – **Research Intern**, MARTINOS CENTER FOR BIOMEDICAL IMAGING, HARVARD MEDICAL SCHOOL, Boston, MA.  
July 2017 Supervisor: *Dr. Amandine Lassalle*  
First to demonstrate that facial expressions are discriminated faster with direct gaze rather than averted gaze, providing further support for the "direct gaze hypothesis".
- June 2018 – **Research Intern**, UNIVERSITY OF AMSTERDAM, DEPARTMENT OF PSYCHOLOGY, Amsterdam, Netherlands.  
July 2018 Supervisor: *Dr. Amandine Lassalle*  
Developed a new methodology in C that incorporated an eye-tracking device. Results with new methodology suggest that, in the context of emotion discriminability, there is a link between ASD and SCZ.

## Academic Projects

2022 **Bachelor Thesis**, *École Polytechnique*.

*A Study of CLIP's Prior Knowledge for Few-Shot Learning and Few-Shot Meta-Learning with Contrastive Learning*

Nov 2020 – **Maths Solver**, *Team Leader*.

Jan 2021 Built a program in C++ that reads a handwritten math equation (such as derivatives, integrals, systems of equations, etc.), and outputs a step-by-step solution. Oversaw the implementation of the data structure representing a function and the algorithms to solve derivatives and integrals. Maintained links between teams to ensure the different parts of code worked together.

July 2020 – **F & M Capital Management**, *Co-founder*.

July 2022 Operations across different exchanges and products within the cryptocurrency space including major coins and altcoins as well as their derivatives. Oversee coding the trading algorithms.

## Teaching

Sept 2022 – **Teaching Assistant**, *Princeton University*.

Present COS 240: Reasoning About Computation

## Awards

**Teaching Assistantship**, *Princeton University*.

Full Funding

**Summa Cum Laude**, *École Polytechnique*.

**Excellence Scholarship**, *École Polytechnique*.

Partial Funding

**Outstanding Student Distinction**, *École Polytechnique*.

## Community Leadership

Jan 2020 – **Student Ambassador**, *École Polytechnique*.

Jan 2021 Represented the school and its bachelor program at student fairs and other similar events. Point of contact for prospective students.

2020 – 2021 **Communication Officer**, *École Polytechnique Bachelor Student Organization*.

In charge of communication between the administration, professors, and students. Create weekly schedules to keep students informed about campus life, and how they can get involved.