Andrea Combette

He | Him











2024

2023

2022

2019

2018

Paris. France

Paris, France

2020 - 2021

Montpellier, France

Montpellier, France

Montpellier, France

Technical Skills and Interests

This section is not an evaluation of my skills, but rather a summary of my interests and projects, and how much i have worked on them.

Programming Languages & Tools



A■ Languages

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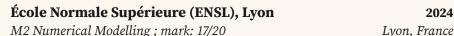
♂ Hobbies & Interests

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Relevant Courses

Computational Statistical Physics • Ralf. Evraers, ENSL	2024
Computational Fluid Dynamics o G. Laibre, E. Levèque, A. Venaille, ENSL	2024
Computational Quantum Many Body ○ T.Roscilde, F.Mezzacapo, ENSL	2024
Scientific Software Development o A.Farnudi, E.Ghobadpour, ENSL	202 4
Machine Learning ◦ N. Pustelnick, J.Tachella, ENSL	202 4
Numerical Methods for PDEs o G.Legendre, ENS	2023

Education



École Normale Supérieure (ENS), Paris

M1 ICFP in Physics; mark: 16.04/20

École Normale Supérieure (ENS), Paris

B.Sc. Degree in Physics;

Lycée Joffre, Montpellier

Classes Préparatoires

UFR Médecine, Montpellier PACES (common first year of health studies)

Lycée Joffre, Montpellier

High School Degree; mark: 19.63/20, with honors

Experience

Swiss Plasma Center - EPFL 🜎 🔁 BIBTEX



Feb 2024 - July 2024

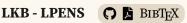
Lausanne, Switzerland

o Machine Learning Characterization of Plasma Turbulence in the TCV Tokamak

o HPC on LEONARDO, and CUWA code

Intern

Student



Sep 2023 - Feb 2024

Paris, France

- o NV centers in diamond, practical project
- o Characterization of NV center's orientation in diamond

IBENS - ENS Biology Institute	Sep 2023 – Feb 2024
Student	Paris, France

- o Spikesorting pipelines, working on Lussac
- o Exploration of Purkinje's cells in the cerebellum

IMS - Intégration Matériaux Systèmes	July 2023
Intern	Bordeaux, France

- Neural Signals generation with **MEARec**
- o GUI interface implementation
- o Optimization of a Spiking Neural Network

IPGG - Institut Pierre-Gille de Gennes May 2023 Intern Paris, France

o Electro-Osmosis Filtration with nano-membrane

o Study of the Hysteresis in the flow

Personal Projects | Contribution

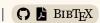
o Study of Hamiltonian dynamics, Thermostating effect, Finite size effect, thermodynamic integration

o Achievements: Ising model, Lennard-Jones model

o global view of the stommel and Munk models, and Stability analysis of numerical schemes

o Arakawa jacobian, unstable friction, Low and High non-linear regime study

Long time Overturn Study in the second phase of the moon cooling | Python | 🕟 🏂 BIBTEX



ML preparatory Week

o Zaccharie Ramzi, Hugo Richard, PSL

2023

2024

2024

• We simulated the unstable convection processes unearthed by L.Collin

 Slow settling of the overturning circulation contradicting previous assumptions, consequences of the thermal pro the Raleigh in the strength of the overturning circulation. 	files and
CGBD contributions Pybind11, Python, C++	2024
Study of Poincaré Waves Python BIBTEX Solving equatorial Shallow Water Equation using Chebyshev Spectral Method Achievements: Decomposition into Rossby waves and Kelvin wave modes	023 - 2024
Generating Realistic Matter Fields for Cosmological Simulations (ML) PyTorch, Globus CNN and diffusion network models, using Quijote and CAMELS datasets Achievements: Generating 2D samples of matter fields	023 - 2024
Hydrodynamics and Mechanics Simulations Comsol, Python	021 - 2022
SpikeWizard Package Python, pip, Sphinx	023 - 2024
ThemeChanger (in development) Python, bs4	023 - 2024
VsCode Theme Python, VSCode Marketplace	023 - 2024