Esteban Foucher

Engineer & physicist – École Normale Supérieure Ulm (class of 2020)

Engineer and physicist trained at École Normale Supérieure Ulm, I work at the intersection of simulation, data, and applied physics. I am currently a thermo-hydraulic simulation engineer at Jimmy Energy, where I contribute to nuclear reactor conception. In parallel, I develop an embedded computer-vision system for aerodynamic measurements.

Contact

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Professional Experience

2025 — Thermo-hydraulic Simulation Engineer, Jimmy Energy

Currently:

- Thermo-hydraulic simulations (computational fluid dynamics)

Internship:

- Support for reactor design engineering and safety
- Exploratory simulations of chemical kinetics under irradiation

My experience at Jimmy includes an initial internship in 2023–2024, followed by joining the simulations team again in 2025.

2024 — Data & Performance Engineer, Orient Express Racing Team

- Data engineering & analysis for performance of the AC40 and AC75 racing yachts
- Data science: development of a post-processing wind-reconstruction tool and an optimizer for calibration
- Collaboration with the mechatronics team for debugging and performance follow-up

My time at OERT covers in particular the phase of commissioning of the AC75 and participation in the 37th America's Cup.

2023 — M2 Research Internship, Nano-optics

Laboratory of Physics, École Normale Supérieure – Nano-optics group

Topic: Ultra-broadband photodetection of the two-dimensional semi-metal $PtSe_2$.

- Conception of the ultrabroadband micro-photodetection experiment
- Fabrication of $PtSe_2$ field-effect transistors
- Download internship report (PDF)

2022 — M1 Research Internship, Condensed Matter

Theory & Simulation of Condensed Matter Group – King's College London

Topic: Fully bold formalism at strong coupling regime for the (0 + 0)-dimensional Hubbard model (theoretical study of a strongly interacting electron system).

- Download internship report (PDF)

2021 — L3 Research Internship, Nanofluidics

Laboratory of Physics, ENS – Nanofluidics group

Topic: Measurement of fluid flows at the nanoscale using confocal fluorescence microscopy.

- [Download internship report (PDF)](#)

Education

2020–2024 — École Normale Supérieure, Paris

- **Master ICFP**: Fundamental Physics (quantum physics major)
- **Bachelor's degree**: Fundamental Physics

Main subjects:

- **Physics:** quantum physics, statistical physics, solid-state physics, special relativity, quantum field theory, general relativity, fluid mechanics
- **Computer science / numerical methods:** numerical methods for partial differential equations, machine learning
- **Mathematics:** statistics, probability, optimization, algebra, analysis

Projects

SailCV – Embedded computer-vision for aerodynamic measurements

Motivated by my experience in the sailing world, I am developing in my spare time an embedded computer-vision project dedicated to aerodynamic measurements.

The project is divided into two sub-projects:

SailCV – tell-tale-tracker

Design of a tell-tale tracker to monitor boundary-layer separation. Creation of a dataset and fine-tuning of a detector.


SailCV – 3D-reconstruction

This project aims to accurately reconstruct metric point clouds from calibrated stereo views. It is based on two main components:

- the ability of recent AI models dedicated to 3D reconstruction to predict dense point correspondences between two views of the same object;
- precise calibration of the intrinsic and extrinsic parameters of a dual-camera system, enabling accurate triangulation.

Stereo reconstruction	Combined view
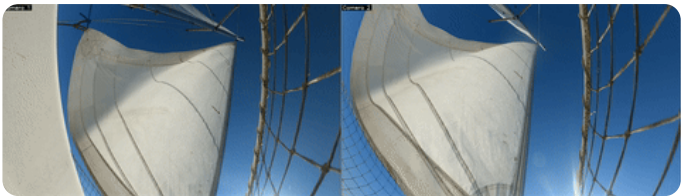
Normale Physics Review

Contribution to the creation and writing of the student physics journal Normale Physics Review.