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Baptiste Lafoux

Ph.D in fluid mechanics, engineer from École des Ponts et Chaussée

EXPERIENCE

2020 - 2024 (3 years 3 mo.)

Doctoral researcher | PMMH laboratory @ESPCI - PSL & Université Paris Cité –Paris
Understanding and modeling collective motion using the example of fish schools

- Designed and implemented two hydrodynamic **experimental setups:** mechanical design, sensor electronics, image acquisition, tracking algorithms (pyTrack)
- Developed **data processing and visualization algorithms** (Python) and theoretical **models**
- 3 publications in **peer-reviewed scientific journals**, 4 participations in **international conferences**
- Managed 4 **research interns** and initiated 3 **collaborative projects** with other research teams
- **Teaching assistant**: student project supervision, experimental & training classes
- PhD students' **representative**, **organizer** of a young researchers' **seminar** (4 days, 50 people)

2019 (6 months)

Research intern | IMSIA laboratory @ENSTA - Institut Polytechnique de Paris –Palaiseau
Master thesis: Prediction and reduction of noise pollution due to wind turbines

- Modified and optimized a **wind tunnel** setup with aerodynamic force measurement (MATLAB, LabView)
- Developed a pipeline for **signal processing** of aero-acoustic timeseries (Python)

2017 - 2020 (2 years 6 mo.)

COO & co-founder | WIND my ROOF –Paris
Design, production and distribution of an innovative roof-mounted wind turbine module

- Created the **start-up**: patent registration, industrialization, business plan, pre-seed
- Winner of the **VINCI Innovation Prize** (2017), project supported by the Leonard incubator

2017 (6 months)

Visiting research intern | Fluid dynamic of disease transmission group @M.I.T. –Boston
Soil pathogens transport by the rain : droplet impacts on granular media

- Developed an experimental protocol for tracking the ejection of soil particles after a drop impact with high speed cameras (MATLAB)

EDUCATION

2020 - 2023

Doctorate | PMMH laboratory –Paris

2018 - 2020

Master of science | École Polytechnique –Palaiseau

- Fluid mechanics specialization with a focus on current research topics
  - Advanced experimental methods & theory in fluid mechanics, geophysical flows & waves, computational fluid dynamics, turbulence & instabilities

2015 - 2019

Engineering degree | École Nationale des Ponts et Chaussées –Champs-sur-Marne

- Generalist engineering school, Top 4 in France
  - Advanced applied mathematics, fluid and solid mechanics (theoretical and computational)
  - Algorithmics and data structures (C++), software development (Python), statistics
  - Introduction to research, energy production, project management

2013 - 2015

Preparatory class | Lycée Henri-Poincaré –Nancy

- 2-year intensive post-secondary program preparing to nation-wide test for admission into top French engineering schools (PCSI, PSI*)
  - General mathematics, physics and engineering

SOFTWARE

- **Programming** – Python (numpy, matplotlib, xarray, scipy, pandas), MATLAB, C++, Git
- **Prototyping** – Arduino, pyDAQmx (NI board), pypylon (Basler camera)
- **CAD** – CATIA, UltiMaker Cura (3D printing)
- **Simulation** – CFD: StarCCM+, Code Saturn - Solid: Abaqus

LANGUAGE

- **English –** Full professional proficiency, TOEIC 980/990
- **German –** Professional working proficiency, Baccalauréat mention « euro Allemand »

ACTIVITIES

Refugee students program @École Nationale des Ponts et Chaussées
Founded and coordinated a return to study program open to 10 refugee and asylum-seeking students

Sailing
Renovation and maintenance of a 9m sailboat, participation in regattas (J80, First 31.7)