DANIEL COSTERO

PhD in Aerospace Engineering

@ danicostero@gmail.com Madrid, Spain https://dcostero.github.io/ linkedin.com/in/danicostero

I am a Quantitative Researcher and Data Scientist with strong technical skills and analytical abilities. I hold a PhD in Aerospace Engineering and have experience in mathematical modeling, numerical simulation, software development (C++ and Python), data science, and fluency in four languages. I am passionate about learning and eager to apply my skills to solve interesting and challenging problems. You can check my website here.

EXPERIENCE

Quantitative Researcher at AFS

Climate Risk Modeling

Sep. 2023 – Present Madrid, Spain

- Implementation of a Python library to **valuate the financial risk** increase caused by climate change as part of OS-Climate
- Development of an online platform that handles climate data ingestion, construction of hazard indicators and vulnerability functions, and updating and reading of financial data
- **Main topics:** financial modelling, data science, cloud storage with S3, SaaS, NPV, LTV and Merton models

PhD Candidate in Aerospace Engineering

EDEM project at Politecnico di Milano

April 2020 – Ago. 2023 Milan, Italy

- Winner of the **Marie Sklodowska-Curie Scholarship funded by EU** within the EDEM project, in collaboration with AVL, to develop **dual-fuel engines**
- Researcher for ENGIMMONIA project, in collaboration with MAN, to develop **ammonia engines** for naval applications
- I developed and implemented a new methodology to achieve **second-order accurate temporal schemes** when a topology change occurs in the spatial discretization
- **Code development with C++** in the open-source CFD code OpenFOAM, including a new spray model, automatic mesh generator, adaptive mesh refinement and overset grids
- Secondment as **Software Developer at AVL** in Austria. I collaborated on the development of combustion models and on the validation of multi-phase problems with IBM.
- **Main topics:** numerical schemes, bash scripting, automatic postprocessing with Python, HPC, CD/CI with Git

Research Assistant

Aerospace Department at ISAE-SUPAERO

April 2019 – April 2020 Toulouse, France

- Modelling of compressibility effects in a transonic airfoil using **Deep Learning Techniques** with Deep CNNs in PyTorch
- Creation of a database of more than 1000 simulations
- I presented my work in the **3AF conference 2021** and it has been published in **Computers & Fluids**(link)

Research Assistant

Technical University of Madrid

July 2018 – Sept 2018 Madrid, Spain

- Prediction of power consumption of **geothermal** installation
- I used **Random Forest** and **XGBoost** with **Python**
- **Data mining** of meteorological measurements

EDUCATION

Msc. in Combustion

ISAE-ENSMA Poitiers, France

Sept 2018 - Sept 2019

- Master of research with focus on **numerical methods** to simulate combustion

Diplôme d'ingénieur

ISAE-ENSMA Poitiers, France

Sept 2017 - Sept 2019

- Propulsion-Energetic track
- Thesis on **geothermal energy**

Msc. in Aerospace engineering

Technical University of Madrid

Sept 2016 - Sept 2019

- Winner of a scholarship to study a **double Msc. program** at ISAE-ENSMA
- Propulsion-Energetic track

Bsc. in Aerospace engineering

Technical University of Madrid

Sept 2012 - Sept 2016

- Aerospace vehicles track

LANGUAGES

Spanish: Native **English**: C2
French: C1 **Italian**: B2

ADDITIONAL TRAINING

- Probability and Statistics
- Introduction to Algorithms
- Advanced Data Structures
- Introduction to Financial engineering and risk management
- Machine Learning and Deep Learning

COMPUTER SKILLS

C++, Python, SQL, LaTeX, OpenFOAM, Microsoft Office Package, Linux OS, Windows OS, GitHub, GitLab, CI/CD, HPC, bash, PyTorch, NumPy, pandas, Sphinx