Jacopo Canton

Personal Information

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Profile

Detail oriented scientist with a passion for programming, complex physics simulations, and chaotic systems. Expert in developing numerical analysis tools for large datasets. Seeking to take a step in the tech industry.

Employment and Education

ETH Zürich (CH) 3/2020 - current
Post-doc with ETHZ fellowship at IAC.

- Analysing the feedback between thermodynamical processes and cloud dynamics.
- Developed an interface with COSMO (F90 & C++).
- Created tools (xarray & pandas) to perform data gathering and analysis, with automated evaluation.

ETH Zürich (CH) 8/2018 - 2/2020
Post-doc with ETHZ fellowship at CSE-lab.

- Developed Machine Learning models to improve CFD simulations stability by 20% on coarse grids.
- Employed Reinforcement- (in house C++) and Supervised (PyTorch) Learning to develop the models.
- Teaching assistant for HPC.

KTH Stockholm (SWE) 3/2014 - 6/2018
PhD student at the FLOW institute.

- Thesis on Transitional and Turbulent Flows. Developed CFD codes (Fortran & Python) running on large scale distributed systems; produced and analysed large datasets.
- Published eight journal articles and presented at sixteen international conferences.
- Won the GKN aerospace award for the best thesis in the nordic countries.
- Teaching assistant for CFD.
- Supervised three Masters theses students.

Argonne National Laboratories (USA) 6-7/2016
Visiting scholar researcher.

- Co-developed an optimization algorithm using nonlinear adjoints in Nek5000 (Fortran CFD code).

Nettronix (IT) 1-3/2012
Internship: data analysis and optics design.

- Development of a data scraping and processing software for monitoring TV satellites and enabling automated design inputs; running on a Raspberry Pi.

B&MSc Aerospace Engineering 9/2008 - 12/2013
Politecnico di Milano (IT) 106/110.

- Thesis on the development of a Finite Element simulation code (C & Fortran) for Flow Stability analysis, leading to one journal article.

Selected projects

pymech – on GitHub
Python package for manipulating meshes and data fields of CFD codes. I created the package in collaboration with a fellow PhD student. Pymech is now available on PyPI and under active development.

Automated maps – on my website
Python code to automatically visualize GPS data on interactive maps. The code interfaces with the Garmin Connect API and Folium library, gathers and filters the data, processes it and generates the maps.

RL with MuJoCo
Hands-on Reinforcement Learning tutorial in Python usign PyTorch and MuJoCo, co-developed with CSE-lab colleagues. I implemented the Reinforce algorithm with PyTorch and designed the MuJoCo environment.

More projects on my website.

Skills

Programming languages & software
Proficient: Python, Fortran, Git, LaTeX, ParaView.
Intermediate: C++, Matlab, MPI, OpenMP, bash.
Prior experience: Google Apps Script, PhP, HTML.

Languages
Native: Italian. *Proficient*: English. *Basic*: French, Swedish, German.

Soft skills
Expert in analysing and breaking down complex problems and implementing effective, robust solutions. Excellent learner and teacher, able to explain complex subjects to heterogeneous audiences. Capable communicator, experienced in listening carefully to feedback and adapting. I strive as part of multicultural team environments.

Online profiles

Website Google Scholar GitHub LinkedIn