Alexandre Carrara

R&D engineer in geophysics and computational fluid dynamics

Personal information

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: https://alexandre-carrara.github.io/

Skills

Programming languages:
- Python
- Fortran
- Matlab
- C
- HTML
- MPI

Softwares:
- MFIX
- FreeCAD
- GMSH
- Paraview
- COMSOL
- ImageJ
- Maxima
- Qgis

Numerical modeling:
- Finite element
- Finite volume
- Finite difference
- Discrete element

Others:
- Communication
- Teamwork
- Problem-solving

Languages

French (Mother tongue)

English (Full professional proficiency)

Spanish (Elementary proficiency)

Highlights:

- Motivated numerical modeling engineer with a strong experience in geophysics and computational fluid dynamics
- Expert in developing, deploying, and using numerical tools and mathematical models of physical processes to tackle challenges in research and development
- Excellent skills in scientific communication and enthusiastic team worker
- Fast learner and eager to develop new skills

Professional experiences:

11/22 – present — **Research Associate, University of Clermont-Auvergne, France**
- Perform numerical simulations employing computational fluid dynamics and the discrete element method to study the rheology of geomaterials
- Design and build laboratory experiments to validate new developments in numerical models

11/20 – 11/22 — **Research Associate, University of Washington, Seattle, WA, USA**
- Develop and test new numerical models to simulate complex multiphase flows using computational fluid dynamics and the discrete element method
- Perform numerical simulations using computational fluid dynamics to study the impact of fluid flow on structures

01/20 – 03/20 — **Invited researcher, University of the Andes, Bogota, Colombia**
- Perform numerical simulations of the propagation of pressure waves in fluids using computational fluid dynamics

10/16 – 12/19 — **Graduate research assistant, University of Grenoble, France**
- Develop numerical simulations using computational fluid dynamics and the discrete element method to study the dynamics of magma chambers
- Teach mathematics, programming, and numerical modeling to undergraduate students

02/16 – 06-16 — **Research intern, Institute of Earth Sciences, Chambéry, France**
- Process satellite radar images to measure the deformation of Earth's surface
- Develop a new method to measure ground deformation on lava flows using satellite radar images

04/15 – 06/15 — **Research intern, Institute of Earth Sciences, Chambéry, France**
- Development of a numerical model to predict the path of magma in the Earth's crust

Summers 12-14 — **Bike rental and repair, OGC Cylcand, Ile de Ré, France**
- Rent/repair bikes and deliver customer services

Education

2019 **Ph.D. in Geophysics, University of Grenoble, France**
Specialization: Numerical modeling, Fluid dynamics, Physics, Volcanology

2016 **MSc in Geophysics, University of Grenoble, France**
Specialization: Physics, Mathematics, Seismology, Rock Mechanics

2014 **Bachelor's degree in Earth Sciences, University of Aix-Marseille, France**
Specialization: Geology, Geophysics, Physics, Chemistry