



Alexandre Carrara

R&D computational fluid dynamics engineer

Personal information

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Skills

Programming languages:

- Python
- Fortran
- Matlab
- C
- HTML
- MPI

Softwares:

- MFX
- 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 computational fluid dynamics
- Expert in developing, deploying, and using numerical tools and mathematical models of physical processes to tackle challenges in research and developments
- 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 <ul style="list-style-type: none">▸ Perform numerical simulations employing computational fluid dynamics and the discrete element method to study the rheology of geomaterials▸ Design and built laboratory experiments to validate new developments in numerical models
11/20 – 11/22	Research Associate, University of Washington, Seattle, WA, USA <ul style="list-style-type: none">▸ 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 <ul style="list-style-type: none">▸ 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 <ul style="list-style-type: none">▸ 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 <ul style="list-style-type: none">▸ 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 <ul style="list-style-type: none">▸ 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 <ul style="list-style-type: none">▸ 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