



Alexandre Carrara

R&D computational fluid dynamics engineer

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 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 <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

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)