Curriculum Vitae

FEDERICA LANZA, PhD

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PERSONAL INFORMATION

Nationality	Italian
Date of birth	June 6, 1987
OrcID	orcid.org/0000-0002-8168-6766
Scopus	55623372300
Languages	Italian (Native), English (Fluent, C2), German (A2-B1), Spanish (A1)

EDUCATION

08/2012 - 12/2016 **Ph.D.,** Geophysics, Michigan Technological University (USA), Thesis Title "Nonlinear inversion strategies applied to source characterization and 3D earthquake tomography in volcanic environments: a case study at Pacaya Volcano, Guatemala" Advisor: Dr. Gregory Waite

10/2009 - 03/2012 **M.Sc.,** Geology, University of Milan-Bicocca (Italy) and Michigan Technological University (USA), final mark 110/110 cum Laude. Advisor: Prof. A. Tibaldi

09/2006 - 10/2009 **B.Sc.,** Geology, University of Milan-Bicocca (Italy), final mark 110/110 cum Laude

EMPLOYMENT

09/2020 - present **Lecturer**, Department of Earth Science, ETH Zürich, Switzerland

11/2019 - present **Routine earthquake analyst,** Swiss Seismological Service, ETH Zürich, Switzerland

07/2019 - present **Senior Researcher (Oberassistent),** Swiss Seismological Service, ETH Zürich, Switzerland

01/2017 - 06/2019 **Post-doctoral Research Associate**, University of Wisconsin-Madison, Madison, WI, USA, Advisor: Clifford Thurber

RESEARCH PROJECTS

12/2024 – present *CETPartnership GEOTWINS (804,347 CHF):* "Digital Twin Components for Deep Geothermal Energy Power and Heat Generation"
Role: **Scientific Coordinator, Work Package and Task Leader**

06/2024 - present *SNSF project funding (316,960 CHF):* "EFFSIMMSI: Advancing Induced Earthquake Forecasting and Fracturing Dynamics via Innovative Scale-Invariant Seismic Monitoring and Multi-Sensor Integration"
Role: **Collaborator**

01/2023 - present *SNSF project funding (375,864 CHF):* "Anatomy and dynamics of volcanic systems: insights from a joint seismic tomography and seismicity analysis of Kīlauea Volcano"
Role: **Principal Investigator**

06/2022 – present *VolcSAT (200,00 CHF):* Advancing real-time seismic monitoring and lahar tracking at Santiaguito Volcano, Guatemala.
Role: **Collaborator**

12/2020 - present *GEOTHERMICA DEEP (2,651,828 CHF):* Innovation for De-Risking Enhanced Geothermal Energy Projects
Role: **Scientific Coordinator, Work Package and Task Leader**

TEACHING ACTIVITIES

Fall 2020 - present *Co-Lecturer* for "Tomographic Imaging", "Seismic Waves II" (ETH Zürich)

August 2022 Invited Lecturer for the USGS-BMKG "Seismic Imaging Training" course (online)

Fall 2018 *Co-instructor* for "Introduction to Applied Geophysics" (UW-Madison)

2013 - 2016 *Outreach:* assisted and led Trash-Can Volcano demonstrations for eight-grade classrooms at Houghton Middle School, Houghton, MI and Hannahville Indian School, Hannahville, MI

Spring 2013 *Teaching Assistant* for "Structural Geology" (Michigan Tech)

SUPERVISION OF JUNIOR RESEARCHERS

09/2023 - present *Alicia H. Rohnacher*, SED, PhD student, PhD project supervision, Joint Seismic Tomography.

11/2020 – 03/2025 *Katinka T. Tuinstra*, SED, PhD student, PhD project supervision, "Enhancing Seismic Monitoring for Geothermal and Carbon Storage Applications using Fibre-Optic Sensing"

03/2020 - 09/2020 *Pedro Guzman Marin*, ETH Zurich, MSc thesis supervision: "Seismicity of the Austral Andes, Southernmost Patagonia".

2017 - 2018 *Laney Hart,* University of Wisconsin-Madison, MSc mentor: "Earthquake Detection, Relocation, and Body-wave Tomography at Okmok Volcano, Alaska".

PRIZES, AWARDS, FELLOWSHIPS

Dec. 2023 Italian habilitation for Associate Professorships, "Abilitazione Scientifica Nazionale, 04/A4: Geofisica"

Sept. 2022 Swiss National Science Foundation project funding grant (375'864 CHF)

Fall 2016 Doctoral Finishing Fellowship (Michigan Tech University)

Apr. 2016 Student travel Grant, SSA Annual Meeting, Reno, Nevada

2012 - 2013 Research Assistantship: Department of Geological and Mining Engineering and Sciences, Michigan Tech University

Fall 2010 INVOGE Scholarship (International Geological Masters in Volcanology and Geotechniques): EU-US ATLANTIS Programme, University of Milan-Bicocca

2008 – 2010 Academic Merit Scholarship, University of Milan-Bicocca (awarded twice)

FIELD WORK (SELECTED EXPERIMENTS)

June 2024 *Kilauea Volcano, Hawaii, USA:* deployment of a large nodal array across the East Rift Zone of Kilauea Volcano for high-resolution seismic imaging and seismicity analysis. (KILT project, SNSF #212644, PI: Dr. Federica Lanza, ETH Zürich)

May 2021 *Hengill, Iceland*: deployment of 500 nodal instruments around the Hengill geothermal area (DEEPEN Project, SNSF #03EE4018, PI: Dr. Anne Obermann, ETH Zürich)

Mar. 2018 *Laguna Del Maule volcanic field, Chile:* demobilization of 35 seismic instruments installed in 2015 in order to understand the dynamic processes of large rhyolitic magma systems (NSF award #1411779, PI: Prof. B. Singer, UW-Madison).

Aug. 2017 *Mount St. Helens, WA, USA*: deployment of 140 nodal instruments around the volcano (NSF award #1520875, PI: Dr. B. Schmandt, University of New Mexico).

May 2017 *Wellington, New Zealand:* demobilization of 10 seismometers as part of the STREWN experiment to investigate the November 13, 2016 Kaikoura earthquake (NSF award #1756075, PI: Prof. C. Thurber, UW-Madison).

May 2016 *Stromboli, Italy:* volcanic jet infrasound measurements as part of the Broadband Acquisition and Imaging Operation (BAcIO).

July 2014 *Mount St. Helens, WA, USA:* Field support specialist (program/deploy/off-load texans) within the iMUSH Active Source Seismic Experiment (http://imush.org/).

2013 - 2015 *Pacaya & Fuego Volcanoes, Guatemala:* multiple seismo-acoustic and GPS campaigns. In 2015 led the deployment of 19 short-period sensors around the summit crater of the volcano (NSF CAREER award #1053794, PI: Dr. G. Waite)

RELEVANT EXPERIENCE

July 2022 *Summer School Machine Learning in Geosciences* (University of Pisa)

Sep. 2021 *Advanced Training for SeisComP: scanloc, local earthquake monitoring,* (gempa GmbH, Online)

Aug. 2020 *2020 Distributed Acoustic Sensing Virtual Workshop and Tutorial*, (Online)

Nov. 2018 *Advancing Integrative Volcanology with Community Experiments Workshop* (Albuquerque, NM)

Sept. 2017 *CIG-LLNL Computational Seismology Workshop* (Livermore, CA), S-WHAV: Seismology Workflow for HPC from Access through Visualization

Aug. 2017	*Pre-IAVCEI MSNoise Workshop* (Portland, OR), A Python Package for monitoring using Seismic Ambient Noise
Jan. 2016	*Workshop on Volcanoes I:* Santiaguito volcano, Quetzaltenango, Guatemala
July 2015	*CIDER II Summer Program:* Solid Earth Dynamics and Climate; Mantle Interactions with the Hydrosphere & Carbosphere, UC Berkeley, CA
Summer 2014	*IRIS/PASSCAL Graduate Student Summer Internship:* worked on research projects related to short-period sensor responses and long-period noise characterization.

PROFESSIONAL SERVICE

2022	*Associated Editor for* Frontiers in Earth Science on the topic: "Earthquake Swarms and Complex Seismic Sequences in Tectonic and Volcanic Areas"
2015 - present	Peer-reviewed scientific articles for various international journals
2013 - present	Member of *European Geoscience Union (EGU); American Geophysical Union (AGU); Seismological Society of America (SSA)*
2020 - 2025	Co-convener at *European Geoscience Union General Assembly (EGU)*, *General Assembly of the European Seismological Commission (ESC), and Seismological Society of America (SSA).*