Giacomo Lazzeri

About me:
PhD Student focussing on technical applications of remote sensing with optical sensors for non-invasive diagnostic environmental analyses. Graduated with honours in the Master Degree Course in Geological Sciences and Technologies for the Environment and Territory, University of Florence. I have acquired specific training in GIS systems, geological monitoring and data interpretation. During my internship and Erasmus experience I have benefited from teamwork in an international context, characterised by a multidisciplinary vision applied to the understanding and practical solution of complex phenomena.

WORK EXPERIENCE

03/2022 – 04/2022 Rome, Italy
GEOENGINEERING LECTURER CIRPS (INTER-UNIVERSITY RESEARCH CENTRE FOR SUSTAINABLE DEVELOPMENT)

This activity saw me engaged in the production of lectures in the framework of the CIRPS activity. The lectures were targeted to students that were about to choose their academic career or as a specialization course for individuals coming from a different academic background.

06/2021 – CURRENT
DATA ANALYST PL-ICL PROJECT N°260: LANDSLIDE RISK ASSESSMENT IN THE HIGH CITY OF ANTANANARIVO.

'PL-ICL Project n°260: Landslide Risk assessment in the High City of Antananarivo'. Commissioning body: International Consortium on Landslides. Scientific Coordinator: Dr. William Frodella.
I was involved in the hyper-spectral analysis of the land cover of the upper city of Antananarivo (UNESCO Tentative List site) and in the assessment of its landslide vulnerability using high-resolution optical data acquired from satellite (Pléiades) and drone platforms.

09/2021 – 12/2021
DATA ANALYST LANDSLIDE SCENARIO ASSESSMENT OF THE PROJECT (SFRARR)

Task 7 "Landslide Scenario Assessment" of the project (SFRARR) "Strengthening Financial Resilience and Accelerating Risk Reduction in Central Asia", Quantification of Regional Disaster Risk and Capacity Building on Risk Identification. Commissioning Body: World Bank. Scientific Coordinator: Prof. Veronica Tofani.
The project saw me involved in the application of satellite analysis of Sentinel-2 multi-spectral data for the assessment of landslide scenarios on the Sarez Lake dam (Tajikistan).

07/2019 – 09/2019 Aveiro, Portugal
TRAINEE IN RESEARCH GROUP UNIVERSIDADE DE AVEIRO

Thanks to the Erasmus+ Traineeship programme, I was included in the research group of the Earth Surface Processes Team of the University of Aveiro, focusing on post-fire environmental analysis. The research focused on evaluating the impact of different mulching techniques in reducing the erosion rate in areas recently affected by fire.
The main activities carried out were:
 • Data collection and interpretation.
 • Installation of experimental systems.
 • Analysis of complex systems.
 • Numerical modelling of soil erosion.
 • Preparation of scientific reports.

01/2016 – 04/2016 Rimini, Italy
MARKET RESEARCH INTERVIEWER BRIGHI SRL

Creation of a database containing companies considered to be of commercial interest for the development of the customer base. Creation of targeted advertising to increase interest in Brighi SRL through market research based on interviews with potential customers.
Website https://www.brighi.com/

EDUCATION AND TRAINING

24/10/2022 – 28/10/2022 Italy
DATA SCIENCE - TEORY AND APPLICATIONS IN PYTHON Fondazione Bruno Kessler, Trento

The course aims to present the main elements that constitute the discipline of Data Science, including programming in Python, elements of statistics, machine learning and artificial intelligence, and data visualisation. These elements are part of a typical Data Science workflow that includes data collection, analysis to extract information ('sensemaking'), and finally visualisation in order to communicate the results to a community of users.

Address On-line, Italy

11/07/2022 – 14/07/2022
SPECTRAL ANALYSIS WITH ENVI Harris Geospatial Solutions Italia s.r.l.

The specific ENVI training focussed on the basic principles of image analysis to then mayorly focus on the hyperspectral data analysis. More specifically, the thematics covered were:
  • Anomaly, and Change Detection
  • Band Math and Spectral Indices
  • Classification
  • PRISMA Toolkit
  • Spectral Tools
  • Pre-processing – Atmospheric Correction
  • Converting to Reflectance With FLAASH (application to PRISMA)
  • Examining Spectra and Using Spectral Libraries
  • Extracting Data Endmembers
  • Minimum Noise Fraction (MNF)
  • Whole Pixel Analysis Techniques

Website https://www.l3harrisgeospatial.com/ | **Type of credits** CFU | **Number of credits** 3,5

01/2022 – 05/2022
WINTER SCHOOL OF GEOMORPHOLOGICAL FIELD MAPPING Università di Camerino

The course was configured as a professional training and refresher course with the aim of disseminating the methodologies and criteria for geomorphological surveying and mapping as well as the methods of conceptual organisation of data for the digital archiving system. The survey methodology was taught us in uniformity with the general criteria of the CARG Project, the PAI Project, Seismic Microzonation and Territorial Planning.

Field of study Geomorphology | **Type of credits** CFU | **Number of credits** 13

16/06/2021
LICENSED GEOLOGIST - STATE EXAMINATION Order of Geologists of Tuscany

10/2018 – 02/2021 Firenze, , Italy
MASTER'S DEGREE IN GEOLOGICAL SCIENCES AND TECHNOLOGIES Università degli Studi di Firenze

Graduated on schedule on topics related to geological and environmental issues. The course focused on the adoption of innovative solutions through the application of Remote Sensing tools and new data collection technologies, both ground-based and satellite-based. The final work of the thesis, "Wildfire

assessment: from field surveys to drone and satellite analysis. Implications on soil erosion and slope instability", focused on soil erosion modelling, validating complex parameters through satellite remotely sensed indices with multispectral (Sentinel-2) and hyperspectral (PRISMA) sensors.
The main skills obtained from the course are:

- Satellite interferometry and multi-temporal image analysis.
- Laser scanner sampling.
- UAV surveys.
- Application of Gb-InSar.
- Monitoring techniques.
- Machine learning for automatic mapping.
- Multispectral and hyperspectral data analysis for scene classification.

Address P.za di San Marco, 4, Firenze, , Italy | **Website** https://www.geologiamagistrale.unifi.it/index.php |

Field of study Geological Sciences | **Final grade** 110 cum laude | **Type of credits** CFU | **Number of credits** 126

09/2019 – 12/2020 Sesto Fiorentino, Italy
IMPRESA CAMPUS - DEVELOPMENT OF YOUTH ENTREPRENEURSHIP CsaVRI - UniFi

Elite course focused on fostering participants' entrepreneurial skills with the ultimate goal of developing a startup. The programme was structured with theoretical lectures and individual study focusing on the principles of lean startup development. This course allowed me to lead a team, *Re-Play*, with the objective of creating a startup based on my idea: creating a new strategy for waste collection in the urban centres of historical cities and encouraging the recycling process through gamification.

Address Via Madonna del Piano 6, Sesto Fiorentino, Italy | **Type of credits** CFU | **Number of credits** 3

01/2018 – 05/2018 United Kingdom
ERASMUS+ SCHOLARSHIP: ENVIRONMENTAL SCIENCES University of Birmingham

The funding provided by the Erasmus+ scholarship at the University of Birmingham allowed me to explore environmental issues related to the Earth-Man dynamics. In addition, through this experience I was able to create a network of young scientists across Europe.
The topics covered were:

- Urban Ecology.
- Geomatics.
- Environmental impact assessment.
- Geomorphological processes.
- Environmental issues in the world.

Address Edgbaston , Birmingham, United Kingdom |

Website https://www.birmingham.ac.uk/schools/gees/index.aspx | **Field of study** Earth Sciences |

Type of credits ECTS | **Number of credits** 60

09/2015 – 12/2018 Firenze, , Italy
BACHELOR OF SCIENCE IN GEOLOGICAL SCIENCES Università degli Studi di Firenze

Thesis sponsored by the National Fire Brigade: "Explorative use of drone (UAV) remotely sensed data for quick mapping of wildfire burnt areas". Supervisor: Prof. Sandro Moretti, Co-Rapporteur Dr. William Frodella. The thesis proposed and tested an innovative methodology for the drone analysis of areas affected by fire and observe the effects on the ground.

Address P.za di San Marco 4, , Firenze, , Italy | **Website** https://www.geologia.unifi.it/ |

Field of study Geological Sciences | **Final grade** 101/110 | **Type of credits** CFU | **Number of credits** 180

26/06/2013 – 12/07/2013 Adelaide , Australia
ENGLISH LANGUAGE ACADEMIC PREPARATION IELI - Flinders University

Intensive English course for access to university courses at Flinders University.

Address Sturt Rd, Bedford Park , Adelaide , Australia | **Website** https://www.flinders.edu.au/

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2
SPANISH	B2	B1	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Good mastery of ArcMap software ｜ Good mastery of FlirTools software ｜ Good mastery of FLIR Tools software ｜ Good mastery of QGIS software ｜ Basic knowledge of Google Earth Engine ｜ Basic knowledge of Matlab software ｜ Good mastery of ENVI software ｜ Good knowledge of PYthon ｜ Bibliographic Research using Scientific Databases ｜ Scientific Report Writing ｜ Good mastery of SPSS software ｜ Good mastery of SNAP software ｜ Professional knowledge of office packages - (Open Office, MS Office) ｜ Good command of academic writing tools: Citavi, Mendeley, google docs, and Research gate.

ADDITIONAL INFORMATION

HONOURS AND AWARDS

06/11/2022
4th CASSINI Hackathon - 2° prize winner team – European Union The Team Fusion4Fire idea was to leverage remote sensing and deep learning to build an improved wildfire monitoring system, taking advantage of Sentinel-2 and 3 as the main sources of high-resolution information fused with other satellites to obtain a better space-temporal resolution of relevant physical variables. The goal was to to build a system that enables better monitoring and modelling of wildfires, thus enabling both foresters and insurance companies to assess and tackle the risk better.

06/06/2021
Copernicus Hackathon 2021 - 2° prize winner – Planetek Italia, Latitudo 40, DTA The challenge of the Hackaton, organised by the Italian Aerospace Technological District (DTA), Planetek Italia, Latitudo 40; was to create innovative business models in the fields of tourism, renewable energies, fishing, using Earth observation and satellite data made available by the Copernicus programme, limiting the pressure on marine and coastal areas and the costs for the environment. The team I was part of came up with a startup project for beach management, both in terms of access and air and water quality. My role within the EpiCoast team was as a technology consultant for the development of products from Copernicus satellite data.

In the competition, the team placed second and was awarded for inclusiveness.

Links https://www.hackcopernicus.planetek.it/ ｜ https://www.ilmattino.it/tecnologia/moltofuturo/ hackathon_copernicus_2021_ecco_vincitori_soluioni_salvare_mare_15_giugno_2021-6021596.html

21/03/2018
Gustavo Sclocchi Theses Award – EAGE, SPE, Assomineraria Organised by SPE (Society of Petroleum Engineers Italian Section), EAGE (European Association of Geoscientists & Engineers) and Assorisorse (Natural Resources and Sustainable Energy) with the aim of stimulating the career of young scientists in the field of energy and new technologies. Special mention for the Three-Year Thesis awarded on the basis of the innovation achieved through the application of UAV-based multispectral sensors for mapping burned areas.

Link https://www.eageseg.org/argomenti/premisponsorships/premio-sclocchi/

COMMUNICATION AND INTERPERSONAL SKILLS

Soft Skills I am a person with a strong positive and pragmatic attitude, characteristics that allow me to interact positively with people from various cultural and/or professional backgrounds, which is reflected in

my ability to network. Through various educational experiences I have further developed a creative thinking attitude for problem solving, integrating different perspectives to arrive at innovative solutions. My many years as a scoutmaster and competitive shot put athlete have allowed me to develop strong leadership and determination, educating me to work towards goals and make decisions under stressful conditions. The Enterprise Campus experience also allowed me to hone social and emotional skills (empathy, socially responsible decision-making, negotiation and conflict resolution).

LICENSES

Driving license A, B

Boating license within 12 NM

RECOMMENDATIONS

Reviewer

Reviewer for scientific journals: *Sensors*, *Water* (MDPI publishing)

PUBLICATIONS

Lazzeri, G.; Frodella, W.; Rossi, G.; Moretti, S. Multitemporal Mapping of Post-Fire Land Cover Using Multiplatform PRISMA Hyperspectral and Sentinel-UAV Multispectral Data: Insights from Case Studies in Portugal and Italy. Sensors 2021, 21, 3982.

Frodella, W.; Lazzeri, G.; Moretti, S.; Keizer, J.; Verheijen, F.G.A. Applying Infrared Thermography to Soil Surface Temperature Monitoring: Case Study of a High-Resolution 48 h Survey in a Vineyard (Anadia, Portugal). Sensors 2020, 20, 2444.