



Mirko D'Andrea

Nationality:

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WORK EXPERIENCE

Developer and Researcher


01/01/2008 – Current

CIMA Research Foundation |  Savona, Italy

- development of algorithms for hazard modelling and analysis
- server-side and client-side development of EWS and Civil Protections tools
- development of mobile applications
- research activities on wildland fires risk assessment and management
- development, implementation and maintenance of regional, national and international services for wildland fire early warning systems
- data analysis

Data scientist

01/05/2019 – 30/06/2019

Institute of Earth Surface Dynamics - UNIL |  Lausanne

Working on the project "A machine learning based approach for wildfire susceptibility mapping. The case study of Liguria region in Italy".

Junior developer and Data Analyst

01/10/2006 – 31/12/2008


Centro Interuniversitario in Monitoraggio Ambientale, University of Genoa |  Savona, Italy

- Development of the RISICO software and related tools
- Development of Early Warning System software
- Data analysis for Forest Fire research

EDUCATION AND TRAINING


University of Genoa

01/10/2007 – 01/10/2010

 Genoa, Italy

University of Genoa

01/09/2003 – 16/06/2006


 Genoa, Italy

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NQF Level: **110/110**

University of Genoa

01/09/2000 – 12/12/2003

 Genoa, Italy

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NQF Level: **104/110**

LANGUAGE SKILLS

Mother tongue(s)

Italian

Other language(s)

	Listening	Reading	Spoken interaction	Spoken production	Writing
English	C2: Proficient	C2: Proficient	C1: Proficient	C1: Proficient	C1: Proficient

	Listening	Reading	Spoken interaction	Spoken production	Writing
	User	User	User	User	User

PUBLICATIONS

Publications

D'Andrea M., Fiorucci P., Holmes T.P. "A stochastic Forest Fire Model for future land cover scenarios assessment." *Nat. Hazards Earth Syst. Sci.*, 10, 2161-2167, 2010.

D'Andrea, M., Fiorucci, P., Gaetani, F., Negro, D. "RISICO: A Decision Support System (DSS) for dynamic wildfire risk evaluation in Italy." *EGU General Assembly Conference Abstracts (Vol. 12, p. 11102) (2010)*.

D'Andrea, M., Fiorucci, P., Biondi, G., Negro, D. PROPAGATOR: a synchronous stochastic wildfire propagation model with distributed computation engine. *EGU General Assembly Conference Abstracts (Vol. 14, p. 13343) (2012)*.

Vitolo, C., Di Giuseppe F., D'Andrea M. "Caliver: An R package for CALibration and VERification of forest fire gridded model outputs." *PloS one 13.1 (2018): e0189419*.

De Angeli, S., D'Andrea, M., Cazzola, G., Dolia, D., Duo, E., Rebora, N. "Coastal Risk Assessment Framework: Comparison of modelled fluvial and marine inundation impacts, Bocca di Magra, Ligurian coast, Italy." *Coastal Engineering (2017)*.

Fiorucci, P., D'Andrea, M., Di Giuseppe, F., Vitolo, C., Rebora, N., Smith, P., Sempere Torres., D. "Improving response during wildfire emergencies: the ANYWHERE pan-european multi-hazard early warning system and tools". *VIII International Conference on Forest Fire Research (2018)*

Fiorucci, P., D'Andrea, M., Biondi, G., Campo, L., Degli Esposti, S., Tonini, M. "Wildfire susceptibility mapping in Liguria (Italy). Comparison of statistical driven partitioning and Machine Learning approach". *VIII International Conference on Forest Fire Research (2018)*

Tonini, M., D'Andrea, M., Biondi, G., Degli Esposti, S., Trucchia, A., & Fiorucci, P. (2020). A machine learning-based approach for wildfire susceptibility mapping. The case study of the Liguria region in Italy. *Geosciences*, 10(3), 105.

Trucchia, A., D'Andrea, M., Baghino, F., Fiorucci, P., Ferraris, L., Negro, D., ... & Severino, M. (2020). PROPAGATOR: An operational cellular-automata based wildfire simulator. *Fire*, 3(3), 26.

Perello, N., Trucchia, A., D'Andrea, M., Esposti, S. D., & Fiorucci, P. (2022). RISICO, an enhanced forest fire danger rating system: Validation on 2021 extreme wildfire season in southern Italy. *Environmental Sciences Proceedings*, 17(1), 37.

Trucchia, A., D'Andrea, M., Baghino, F., Perello, N., Rebora, N., & Fiorucci, P. (2024). Experiences and Lessons Learnt in Wildfire Management with PROPAGATOR, an Operational Cellular-Automata-Based Wildfire Simulator. *Responding to Extreme Weather Events*, 49-76.

PROJECTS

Projects

2006-2008 FP6 PREVIEW (PREvention, Information and Early Warning). Adaptation of RISICO in sub-alpine regions (Winter Fire System) and implementation in Regione Lombardia.

2006-2009 FP6 CYCLOPS (CYber-Infrastructure for Civil protection Operative ProcedureS). Porting of RISICO in GILDA Grid Environment.

2009-2012 Interreg Marittimo IT-FR PROTERINA-C. Climate change impact analysis on wildfire risk. Development and application of strategies for wildland fire risk reduction. Adaptation and implementation of RISICO at regional level in Liguria, Sardinia and Corsica (FR).

2009-2010 Implementation of RISICO in Albania, training and local assistance. Funded by the Italian Cooperation Program.

2010-2012 Strengthening of the Lebanese national system for the mitigation of forest and rural fires. Implementation of RISICO in Lebanon, training and local assistance to the Lebanese Civil Defence. Funded by Italian Cooperation.

2013-2014 Adaptation of RISICO at regional level in regione Puglia. Development of web services for wildfire early warning at regional level.

2014-2017 RISC-KIT: Resilience-Increasing Strategies for Coasts - toolKIT

2014-2016 Establishment of Sustainable Natural Resources Management Platform and Early Warning System. Maintenance and innovation of RISICO system in Lebanon. Funded by World Bank.

2016-2019 H2020-DRS-01 ANYWHERE (EnhANCing emergency management and response to extreme WeaTHER and climate Events). Adaptation and implementation of RISICO in Andalusia and Catalonia (ES), Finland, Bern (SW), Municipality of Genoa. Adaptation and implementation of a stochastic fire propagation model (PROPAGATOR) in case study areas.

2020-2024 SAFERS (*Structured Approaches for Forest fire Emergencies in Resilient Societies*). Integration of the PROPAGATOR model into the SAFERS platform.

ORGANISATIONAL SKILLS

Organisational skills

Good organisational skills.

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

Good communication skills.

Basic teaching skills.

JOB-RELATED SKILLS

Job-related skills

1. Excellent skills in software development, I'm responsible for the design and implementation of several state of the art algorithms and tools implemented in regional, national and international early warning systems.

1. Very good knowledge of several programming language:

2. C/C++, Java, Python, Matlab, Rust, HTML/CSS/Javascript, R

1. Proficient in several server-side technologies:

2. PostgreSQL, Django, Apache Tomcat, NodeJS, Docker

3. Proficient in client-side technologies such as:

4. AngularJS, Angular, Ionic Framework

1. Very good knowledge of several data science libraries and tools:

2. Numpy, Scipy, Jupyter Notebook, Pandas/Geopandas, RStudio, Matlab

