PERSONAL INFORMATION

Caterina Alfano

caterina.alfano@uniroma1.com

Sex Female | Date of birth 19/06/1997 | Nationality Italian

LinkedIn: https://it.linkedin.com/in/caterina-alfano

EDUCATION AND TRAINING

October – December 2023

"Create - Protect - Innovate: Bringing ideas to market (online training course)

The European Patent Academy

November 2021-present

Phd Student in Network Oncology and Precision Medicine

Sapienza University of Rome

Ranking first in the Phd admission exam.
Auditor of the Advanced Professional Course in Immuno-Oncology.
Sapienza training courses on “soft skills” A (RI & Project writing), D (Communications and Ethics) and E (Third Mission, Public Engagement and Entrepreneurship).

August 2021

Cornell, Maryland, Max Planck Pre-doctoral School

Selected to attend the 2021 edition of CMMRS that focused on state-of-the-art research in computer science.

February – July 2021

Research Internship

Sapienza University of Rome

During my master’s degree, I worked on a network medicine research project aimed at integrating and analysing complex biological data to gather insight into the occurrence of drugs’ side effects. This information can be used both for precision medicine purposes and to better develop new drugs. This work was later used to prepare a manuscript that has now been published.

July – September 2020

Google and Poste Italiane Training Camps

As part of the practical activities organized by the Data Science degree, I completed two training camps. These consisted in challenges of object detection on satellite imagery (with Poste Italiane) and in the development of a search engine for images (with Google).

2019 – 2021

Data Science Master’s Degree

Sapienza University of Rome

Grade: 110/110 cum laude
Thesis title: A network-based approach to investigate drug therapy-related side effects: a case study about hormonal contraceptives

February - June 2019

Research Internship

Sapienza University of Rome

During this internship with my university aimed at writing my thesis, I studied reinforcement learning and the challenges of the smart-home devices to then develop a wireless communication protocol that I implemented and tested.

2016 – 2019

Bachelor of Computer Science

Sapienza University of Rome

Grade: 110/110 cum laude
Thesis title: Use of reinforcement learning in the communication between wireless devices

RESEARCH ACTIVITY

Research topics: network medicine, computational methods for biomarker integration, drug repurposing, omics data analysis.
My research activity focuses on developing and applying network-based methods to integrate and analyse complex bio-medical data. The aim of such analyses is to obtain results that can have an impact in the clinical practice, by supporting precision medicine approaches.
My research profile is highly interdisciplinary, given my computational background and the current enrolment in a Phd hosted by the department of Experimental Medicine. Indeed, I often collaborate with both the Oncogenomic Research Unit and the Laboratory of Immunology and Cell Therapy.

LANGUAGES

Mother tongue(s): Italian

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
	Cambridge Esol CAE				
Spanish	B2	B2	B2	B2	B2
	Dele Nivel B2 – Instituto Cervantes				
Brazilian Portuguese	B1	B1	A1	A1	A1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

ADDITIONAL INFORMATION

Publications

Manuela Petti, **Caterina Alfano**, Lorenzo Farina, Molecular network analysis of hormonal contraceptives side effects via database integration, Informatics in Medicine Unlocked, Volume 36, 2023, 101163, ISSN 2352-9148

C. Alfano, L. Farina and M. Petti, "Differential Co-expression Network Analysis to Investigate Sexual Dimorphism in Colon Cancer," 2022 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Las Vegas, NV, USA, 2022, pp. 1873-1878

C. Alfano, L. Farina, M. Petti, Biomarkers' networks: uses and purposes. Genes 2023, 14, 429.

Caterina Alfano, Lorenzo Farina, Manuela Petti Network-based integration of clinical, imaging and molecular biomarkers of dementia. Conference paper accepted for the "GNB Congress (VIII National Congress of Bioengineering).

C. Alfano, L. Farina and M. Petti, "Stratification of metastatic melanoma patients based on mutational signatures," 2023 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Istanbul, Turkiye, 2023, pp. 2798-2802,

Abstracts

G. Grieco, Z. Besharat, A. Mori, S. Trocchianesi, L. Farina, M. Petti, **C. Alfano**, S. Auddino, M. Bruttini, A. Po, L. Nesti, A. Natali, G. Sebastiani, E. Ferretti, F. Dotta - "Network analysis of circulating microRNAs reveals novel therapeutic targets in subjects with type 2 diabetes and cardiovascular disease", for the European Association for the Study of Diabetes (EASD), 59th annual meeting 2023

A. Pace, F. Scirocchi, **C. Alfano**, S. Minasi, A. Asquino, C. Napoletano, I. Zizzari, L. D'Angelo, A. Santoro, L. Farina, F. Buttarelli, M. Petti, M. Nuti, A. Rughetti – "Dissecting Immunosuppression in glioblastoma: the MGL C-type lectin and its ligands in the tumor microenvironment", for the 35th AICC International Meeting 2023

A. Pace and C. Alfano, F. Scirocchi, C. Napoletano., I. Zizzari, L. Farin, M. Nuti, M. Petti, A. Rughetti – "Network analysis to unveil lectins-mediated immunosuppression in glioblastoma", for the Congresso della Società italiana di Immunologia 2024

Awards and Grants	In 2022 I won a “Progetti di Avvio alla Ricerca – Tipo 1” grant from Sapienza
Conferences and presentations	Jun 2023: GNB Congress (VIII National Congress of Bioengineering) - Poster Dec 2023: IEEE International Conference on Bioinformatics and Biomedicine - Presentation
Professional associations	Gruppo Nazionale di Bioingegneria - student member IEEE - student member IEEE Engineering in Medicine and Biology Society (EMBS) - student member
Technical Skills	Programming languages: R, Python, SQL, Java, MongoDB, Assembly Other topics I worked on: Machine learning and computer vision, Neural Networks, Bayesian analysis with MCMC simulation, Brain network study during resting state, Classifying default risk, Fake News Detection (NLP), Image filtering and object identification, Simulation of load balancing systems in data centers, The Selfish Gene (Richard Dawkins) Simulation Other: Latex, Microsoft Word, Microsoft Power Point, Photoshop, Pytorch, Tensorflow

SOFT SKILLS

Communication skills	- working often as a part of a group helped me to develop great communication and teamwork skills; - from tutoring classmates from a young age to holding seminars featured in university classes, I confronted myself with a teaching experience several times; - my master’s degree attracted people from all over the world, so I am used to interact with people with different cultures and backgrounds. Furthermore, having a strong interest in social sciences, I took an extracurricular exam of cultural anthropology.
Organisational / managerial skills	I am great at planning and prioritizing since I often managed extra activities during my academic journey, and I am currently handling high-responsibility projects.
Other	I consider myself a very eclectic and curious person, which benefits from culturally stimulating and interdisciplinary environments. I am an autonomous and thorough worker