

PERSONAL INFORMATION



Gabriele Accarino

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Sex Male | Nationality Italian

PERSONAL STATEMENT

Technical-Economic Education, ICT Engineering background (Bachelor's Degree), Computer Engineering specialization with interest in the issues related to Machine Learning, Deep Learning and Big Data. Data Science Ph.D. student. I enjoy acquiring new competences from disparate fields, merging them to design and implement innovative projects. In this sense, I perceive the interdisciplinarity that characterizes my education as an essential skill for my future.

WORK EXPERIENCE

05/2018–10/2018

Post Degree Research Assistant

CMCC Foundation • Euro-Mediterranean Center on Climate Change, Lecce (Italy)

Advanced Scientific Computing Division (ASC)

I applied my skills to define the **best practices** for the use of **Machine Learning** in the Climate Change domain with promising results. This role has allowed me to develop a solid methodology to develop **hybrid models**, i.e. models in which computationally expensive software components are replaced by predictions of a learning algorithm, which is therefore embedded within the model. In particular, a **neural network** was used to emulate the behavior of the **NEMO advection kernel** (Nucleus for European Modeling of the Ocean), the state of the art in oceanic frameworks for oceanographic research.

- Keywords: Machine Learning, Deep Learning, Artificial Neural Networks, Big Data, Hybrid Modeling, High Performance Computing, Climate Change.

12/2017–03/2018

Internship

CMCC Foundation • Euro-Mediterranean Center on Climate Change, Lecce (Italy)

Advanced Scientific Computing (ASC) Division

I have carried out an in-depth study of the state of the art of "data movement" tools in the scientific field. The study focused on **Big Data** techniques and movement tools in order to test their costs and benefits on real high-performance systems. One of the main use cases involved moving data from **ESGF (Earth System Grid Federation)** repositories, a Peer-to-Peer (P2P) infrastructure that maintains a global system of federated data centers allowing access to the largest **climate data** archive (simulations and observations) in the world. My research is an exploratory contribution to lay the foundations for the design of a **Data Hub**, a centralized infrastructure that collects data from different data centers in order to analyze them.

- Keywords: Big Data, ESGF, Climate Data, Data Hub

09/2011–04/2013

Technical salesperson

Apple Premium Reseller S.p.a, Lecce (Italy)

The work consisted in providing commercial advice on Apple © products, helping customers with the configuration of new devices and the solving of software problems.

EDUCATION AND TRAINING

11/2018–Present

Ph.D. in Data Science

University of Salento, Lecce (Italy)

Department of Biological and Environmental Sciences and Technologies (DiSTeBA)

Ph.D. program focusing on Data Science issues with a particular application of Machine Learning and Deep Learning algorithms to address problems related to the Climate Change domain.

I'm currently dealing with projects that include: Time series prediction, Downscaling, Hybrid modeling, Climate change and conflicts

2015–2017

Master of Science in Computer Engineering

University of Salento, Lecce (Italy)

Average Mark: 29.00 / 30

Final Mark: 110/110 cum laude (with honours)

Master Thesis in High Performance Computing

Thesis title: On the use of Deep Learning in the Climate Change domain

Supervisor: Giovanni Aloisio (Full Professor)

The thesis was elected to constitute a scientific document that I am currently working on

- Course held entirely in **English**
- Fields: Data Science, Robotics and Controls, Network Technologies, Software Engineering, Parallel and High-Performance Computing
- I ranked at the **top** of my course

2011–2015

Bachelor's Degree in Information Engineering

University of Salento, Lecce (Italy)

Final Mark: 105/110

Thesis title: Control systems with Smith's Predictor, analysis and fundamental properties

Related subject: Foundations of Automatic Controls

Supervisor: Giovanni Indiveri (Associate Professor)

2006–2011

High School Diploma

Istituto Tecnico Economico Galilei - Costa, Lecce (Italy)

Final Mark: 100/100

- Winner of several money awards for outstanding merit

PERSONAL SKILLS

Mother tongue(s)

Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
Spanish	A1	A1	A1	A1	A1
French	A1	A1	A1	A1	A1

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

Communication skills Advanced communication skills developed through the continuous presentation of my projects and work in research environments. As a researcher, I have made new alliances and collaborations, reinforcing existing sponsorships. Dynamism, optimism and spirit of enterprise guide my work.

Organizational / managerial skills Advanced organizational and managerial skills, thanks to my experience as a Team Leader in the management of a research group. Excellent ability to coordinate work groups even if physically distant through messaging tools, video calling (Skype) and Cloud (Drive, GitHub, BitBucket). Great ability to adapt to new contexts.

- Job-related skills** Acquired skills:
- Coding (Python, C, Bash, Java, MATLAB, SQL, UML, HTML)
 - Professional Python programming (over 5 years) and use of libraries like Pandas, Numpy, Scikit-learn, Matplotlib
 - Professional use of state-of-art Machine Learning frameworks like TensorFlow and Keras to prototype and develop learning algorithms
 - Strong theoretical background in Machine Learning; I implemented several learning algorithms from scratch, such as Linear and Logistic Regression, Neural Networks, SVM, K-Means, PCA, Recommender Systems and Anomaly Detection Systems
 - Strong capabilities to design and implement ad-hoc Machine Learning algorithms for the problem
 - Ability to start and supervise new software projects that involve Machine Learning issues in a multidisciplinary environment
 - Strong coding capabilities: clean, modular and efficient
 - Data Science
 - Design of databases and related management

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

Digital skills - Self-assessment grid

ECDL: European Computer Driving License

- Excellent knowledge of the Microsoft Office package
- Excellent knowledge of Apple products and software
- Excellent knowledge of Mac OS, Linux and Windows operating systems

Driving licence B

ADDITIONAL INFORMATION

- Projects**
- ANIMA: An artificial intelligence tool for migration analysis and projections (winner of the Leonardo Innovation Award 2018, Ph.D. category)
 - The Stanford Arm: development of a simulator and Kinematic Control Law
 - Rigidity based formation control of nano-quadcopters
 - Java Web application for the management of vending machines, with simulated purchases through the mobile App using NFC technology
 - Java Desktop application for the management of courses timetables in an Engineering Faculty

Honours and awards

- Leonardo Innovation Award 2018, **3rd place, Ph.D. category**, Project Topic: Cognitive Systems. *ANIMA: An artificial intelligence tool for the migration analysis and projections.*
- Machine Learning Stanford (Professor Andrew Ng): certification obtained through the Coursera platform, 11 weeks, grade 96.9
(<https://www.coursera.org/account/accomplishments/certificate/P8M5EJNZ9ZP5>)

Conferences

- 5th ENES HPC Workshop on HPC for High-Resolution Climate and Weather Modelling, Lecce – Italy, May 17-18, 2018.