

PERSONAL INFORMATION

Fabrizio Antonio

✉ fabrizio.antonio@cmcc.it

🆔 <https://orcid.org/0000-0002-7693-0111>

WORK EXPERIENCE

May 2016–Present

Post Degree Research Collaborator

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

- Collaboration on the MARSOP4 (Monitoring Agriculture with Remote Sensing OPERational - Lot 4) project, which aims to i) provide the necessary information to understand how weather events impact on crop growth, and ii) monitor crop growth and forecast the yields of the main crops in Europe, the neighbouring countries and other areas of the world. Specifically, the objective of LOT 4 is to allow the inspection and display of the JRC MARS database content via dedicated services for authorized users as well as disseminating data and information through dedicated web sites and additional services to the public.

Main activities:

- Code inspection and reverse engineering of the legacy system (developed in Delphi)
- Architectural design and implementation of the new caching system using an object-oriented approach (Java programming language)
- Testing, tuning, performance analysis and optimization of the enhanced caching system
- Supporting the CMCC Supercomputing Center staff in the management, maintenance and monitoring of the virtual infrastructure devoted to the MARSOP4 project, in VMware and Oracle environments. Specific experience as Oracle Database Administrator dealing with the following responsibilities:
 - Allocating system storage and planning future storage requirements for the database system
 - Creating primary database storage structures (tablespaces)
 - Creating primary objects (tables, views, indexes)
 - Modifying the database structure, as necessary
 - Enrolling users and maintaining system security
 - Monitoring and optimizing the performance of the database
 - Backing up and restoring the database
 - Contacting Oracle Corporation for technical support
- Collaboration on the PRIMAVERA (PRocess-based climate sIMulation: AdVances in high resolution modelling and European climate Risk Assessment) project, which aims to develop a new generation of advanced and well-evaluated high-resolution global climate models, capable of simulating and predicting regional climate with unprecedented fidelity, for the benefit of governments, business and society in general.

Main activities

- *Comor-ization* of climate simulations for the 1950-2050 period, carried out using two different configurations of the CMCC-CM2 model, at high and very-high resolutions. The processing was performed by using the CMOR3 (Climate Model Output Rewriter, Version 3) software library in order to produce CF- (Climate and Forecast) and CMIP6- (Coupled Model Intercomparison Project Phase 6) compliant netCDF files. The structure of the files created by CMOR and the metadata they contain fulfil the requirements of many climate communities' standard model experiments.
- Uploading of the processed datasets on the JASMIN Analysis Platform, a Linux based system containing many tools used by Atmospheric and Earth Observation scientists to analyse data.
- Collaboration on the BARRACUDA (pid-BAasedwoRkflowsfoRclimAteChangeUsingophiDiA) project, which aims to bring the multi-model climate analytics experiment case study implemented in the context of the H2020 EU INDIGO-DataCloud project one step forward, by adopting the RDA recommendation on the PID Information Types (PIT) framework.

Main activities

- Design of the RDA-PIT support into Ophidia, a big data analytics research effort aimed at providing support for the access, analysis and mining of scientific data.
- Basic tests on the PID Handle service managed at DKRZ.
- Implementation, testing and validation of the Ophidia support for RDA-PIT.
- Integration of the PID-resolving interface in the testbed set-up in the EU H2020 INDIGO-DataCloud project.
- Collaboration on the "In-Memory Parallel diagnostics" WP5 of the "NEMO Evolution" Strategic Project, which aims at the integration of the "data" component in the NEMO eco-system and the support of the on-line parallel diagnostics during simulations runs.

Main activities

- Design and implementation of the in-memory analytics engine
- Real-time parallel diagnostics: definition and implementation of several analytics metrics
- Integration of the parallel diagnostics support in the NEMO eco-system
- Development of a mobile application for iOS devices, whose main goal is to raise the awareness of the society about fire danger. Processing of the collected information and production of aggregated statistics made available to the general public through the CMCC Foundation website.

Main activities

- Development of the application with Xcode 9 and Swift 4
- Testing by TestFlight
- Publication on the App Store
- Collaboration on the NEXTDATA project, a National system for the retrieval, storage, access and diffusion of environmental and climate data from mountain and marine areas.

Main activities

- Set-up and maintenance of the data management services in terms of data publication, data access and data analysis
- Collaboration on the APOLLON (environmentAI POLLutiOn aNalyzer) project, which aims to implement and experience innovative methods and tools for environmental quality monitoring in an urban context, with specific regard to air and noise pollution and ultraviolet radiation.

Main activities

- Design of the data acquisition and big data management layer
- Definition of the data archive and design of the data analysis workflow required for the project.
- Collaboration on the EOSC-hub project, which aims to provide integration and management services for the European Open Science Cloud.

Main activities

- Architectural design for the integration of OneData, a global data access solution for science, in the ECAS environment
- Deployment and management of OneData storage provider at the CMCC Supercomputing Center premises
- Creation and registration of an ECAS/Ophidia single-instance VMI (Virtual Machine Image) in the EGI Applications Database
- Integration of ECASLab with IM (Infrastructure Management) and deployment of an ECAS cluster in the EGI FedCloud
- Integration of ECAS/Ophidia with the EGI Applications on Demand (AoD) service, through the EGI EC3-LToS portal

Business or sector Research institution

- Mar 2013–Oct 2013 **Student collaboration contract**
Faculty of Engineering - University of Salento, Lecce (Italy)
- Support to the Student Career and "University Registry" management
 - Use of *Titulus*, a document management and electronic registering system
- Business or sector** Research institution
- Nov 2010–Feb 2011 **Student collaboration contract**
Faculty of Engineering - University of Salento, Lecce (Italy)
- Support to the Student Database management: academic career, study programme, traineeships
- Business or sector** Research institution
- Oct 2010–May 2011 **After-school activity**
COMELES Cultural and Recreative Association
- Private lessons on technical and scientific subjects for secondary school students
- Business or sector** Cultural and Recreational Association

EDUCATION AND TRAINING

- Apr 2013–Apr 2016 **Master's Degree in Computer Engineering** 110/110 cum laude
Faculty of Engineering, University of Salento, Lecce (Italy)
- Thesis on High-Performance Computing titled "Performance analysis and optimisation of the Ophidia Big Data framework"
- Supervisor: Prof. Giovanni Aloisio
- Assistant Supervisors: Ph.D. Sandro Fiore, Eng. Alessandro D'Anca
- Main subjects covered: High- Performance Computing, Database, Network Technologies, Parallel Algorithms, Software Engineering, System and Network Programming, Advanced Control Techniques
- Oct 2007–Apr 2013 **Bachelor's Degree in Information Engineering** 99/110
Faculty of Engineering, University of Salento, Lecce (Italy)
- Thesis on Database, titled "XRA: a declarative approach for generating HTML5-based interface objects for non-relational DB"
- Supervisor: Prof. Mario Bochicchio
- Main subjects covered: Database, Software Engineering, Computer Networks, Computer design and operating systems
- Sep 2002–Jun 2007 **High School Diploma** 100/100
I.T.I.S. "E. Mattei", Maglie (LE) (Italy)
- Main subjects covered: Computer Science, Analog and Digital Electronics, Information Systems, Mathematics

PERSONAL SKILLS

Mother tongue(s) ITALIAN

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
ENGLISH	B1	B2	B1	B1	B2

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

- Ability to work in a team environment, acquired during the university career by taking part in several work projects
- Good communication skills

Organisational / managerial skills

- Ability to plan the assigned activities and tasks
- Constant effort in achieving goals in accordance with the deadlines

Job-related skills

- Self-motivated
- Good problem-solving capabilities

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

Operating Systems: Microsoft Windows, Linux CentOS, MacOS

Programming Languages: Java, Python, C, C++, PHP, bash scripting, Swift

Web Development: HTML, XML (XSL, DTD, XML-Schema, XPath), CSS, JavaScript, JSP, Struts 2

IDE: Eclipse, NetBeans, Visual Studio, Xcode

Web Server: Apache, Tomcat

Database: MySQL, Oracle, Microsoft Access, SQL language; Sql Developer, Oracle VM Manager, Oracle Enterprise Manager Database Express, Oracle Automatic Storage Management (ASM).

Data warehouse: ERP Systems, Systems and architectures of data warehousing

Software libraries and data formats for scientific data: NetCDF, CF convention, HDF5, GRIB

Modeling Languages: UML, ER and EER Models

Networking: TCP/IP, HTTP, SMTP, DHCP, DNS

Design Tools: Microsoft Visio, OmniGraffle

Profiling Tools: Java VisualVM, Scalasca, Score-P, Intel Trace Analyzer and Collector

Experience in: Oracle Virtual Machine (VM) server virtualization; VMware; Oracle VM VirtualBox; C# and Delphi programming; Matlab software; Hibernate; Parallel programming environment (MPI); Software versioning (svn, git), Ansible

- Other skills
- Commitment and great dedication
 - Aptitude to work towards goals
 - Pragmatism
 - Flexibility
 - Sense of duty

Driving licence B

ADDITIONAL INFORMATION

Publications

Towards an Open (Data) Science Analytics-Hub for Reproducible Multi-Model Climate Analysis at Scale

Sandro Fiore, Donatello Elia, Cosimo Palazzo, Alessandro D'Anca, Fabrizio Antonio, Dean Williams, Ian Foster, Giovanni Aloisio

2018 IEEE International Conference on Big Data (Big Data)

DOI: 10.1109/BigData.2018.8622205

Extratropical transition of Tropical Cyclones: are we able to represent the associated water transport?

Enrico Scoccimarro, Alessio Bellucci, Pier Giuseppe Fogli, Daniele Peano, Alessandro D'anca, Fabrizio Antonio, Sandro Fiore, Silvio Gualdi

2018 EGU General Assembly Conference Abstracts

[submitted] Graph Database-enabled Micro-Provenance Service for Reproducible Climate Analytics Workflows in Open Science environments

S. Fiore, D. Elia, C. Palazzo, F. Antonio, A. D'Anca, G. Aloisio

2nd Joint International Workshop on Graph Data Management Experiences & Systems (GRADES) and Network Data Analytics (NDA) 2019, Co-located with the ACM SIGMOD International Conference on Management of Data 2019

Moisture transport associated to Tropical Cyclones: North Atlantic and Maritime continent cases

Daniele Peano, Enrico Scoccimarro, Alessio Bellucci, Annalisa Cherchi, Alessandro D'Anca, Fabrizio Antonio, Sandro Fiore, and Silvio Gualdi

2019 EGU General Assembly Conference Abstracts

The ENES Climate Analytics Service for FAIR data workflows

Tobias Weigel, Sandro Fiore, Sofiane Bendoukha, Donatello Elia, Fabrizio Antonio, Alessandro d'Anca
EOSC-hub Week 2019

Conferences

2018 IEEE International Conference on Big Data

Towards an Open (Data) Science Analytics-Hub for Reproducible multi-model Climate Analysis at Scale

Open Science in Big Data (OSBD) workshop

December 10-13, 2018, Seattle, WA, USA

2019 EGU General Assembly Conference

Data Analysis made easy with the ENES Climate Analytics Service (ECAS)

Co-organized as Earth & Space Science Informatics, Geosciences Instrumentation & Data Systems

April 7-12, 2019, Vienna, Austria

Certifications

ECDL - European Computer Driving License

Certification Authority: AICA (Associazione Italiana per l'Informatica ed il Calcolo Automatico - *Italian Association for Computer Science and Automatic Calculation*)

Date: 02/02/2006

Internship

03/03/2015 - 01/10/2015

HPC Lab, Faculty of Engineering, University of Salento (Italy)

- Use of tools for performance analysis
- Definition of a benchmark for *Ophidia*, a Big Data analytics framework in the climate change domain

Internship

September 2010 - December 2012

SetLab, Faculty of Engineering, University of Salento (Italy)

- Use of *OrientDB*, a NoSQL Database

In compliance with the Italian legislative Decree no. 196 dated 30/06/2003, I hereby authorize the use and processing of my personal details contained in this document.

Lecce, 11/04/2019