europass

Antonio Mariani

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ABOUT ME

I am a Software Engineer specializing in the development, maintenance, and monitoring of complex workflow systems running on **HPC clusters**.
With a strong passion for **parallel algorithms** and **optimization**, I currently serve as both the Developer and Operational Manager for the **Mediterranean Monitoring and Forecasting System (MED-MFC)** workflow.
Skilled in **Python development**, I focus on designing clean, efficient, and "pythonic" architectures that prioritize maintainability and performance.
I thrive on tackling new problems that push me to think outside my usual frameworks and challenge my traditional approaches. I embrace change as an opportunity to evolve and adapt, continuously improving both my technical skills and my perspective. I believe in lifelong learning, knowing there is always something new to discover and master.

WORK EXPERIENCE

Operation Manager for the Mediterranean Forecasting System

CMCC [01/01/2023 – Current]

City: Lecce

- Responsible for overseeing the daily operations and workflows of the Mediterranean Forecasting System to ensure timely and accurate data delivery to Copernicus.
- Collaborated closely with the Operational Team, leveraging expertise in the Mediterranean Forecasting System workflow to ensure smooth daily operations and timely data delivery.

Junior Research Associate

CMCC [01/04/2020 – Current]

City: Lecce | **Country:** Italy

- **Technical expert** and main developer for the **Mediterranean Sea Monitoring and Forecasting System (MED-MFC)**.
- Designed and developed the current MED-MFC workflow system, leveraging **Cylc 8.x** as the workflow engine and creating a custom framework for workflow management.
- Proficient in **Python** for data processing, automation, and development, with expertise in working with **netCDF files** using libraries like **xarray** for data manipulation and visualization.
- Developed an internal library to efficiently and reliably download data from the **Copernicus Marine Data Store**.
- Skilled in **Bash scripting** and **Unix/Linux systems** for automation, system management, and optimizing operational workflows.
- Designed and implemented an internal **CI system**, gaining hands-on experience with **GitHub Actions** to automate and streamline testing workflows.
- Knowledgeable in **Java** software development, with experience in **Spring Boot**, **Hibernate**, and **MySQL** from previous projects.

EDUCATION AND TRAINING

Master of Science Degree in Computer Engineering

Università del Salento [10/2017 – 02/2020]

City: Lecce | **Country:** Italy | **Field(s) of study:** Engineering, manufacturing and construction | **Final grade:** cum laude | **Thesis:** Grid-Based Contraction Clustering in a Peer-to-Peer Network

• Thesis in "Parallel Algorithms": Distributed Contraction Grid-based Clustering.
• Study of computer engineering disciplines such as: Robotics, Computer Vision, Database SQL and NOSQL , Network Technologies, HIgh Performance Computing, sequential, parallel and distributed algorithms, System and Network Unix programming, Software Engineering.

LANGUAGE SKILLS

Mother tongue(s): Italiano

Other language(s):

English

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

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

DIGITAL SKILLS

Programming Languages

Python / C++ / C / Bash / Java

Frameworks/Tools

CYLC / Git / MySQL / GitHub Actions / netCDF / Pytest / IBM Platform LSF / SLURM Job Scheduler / Spring Boot

Other Skills

Design Patterns / Object-Oriented Programming / Machine Learning / Linux / Unit Testing / CI/CD

PUBLICATIONS

[2020]

Grid-Based Contraction Clustering in a Peer-to-Peer Network

In this paper we present P2PRASTER, a distributed algorithm relying on a gossip–based protocol for clustering that exploits the RASTER algorithm and has been designed to handle big data in a decentralized manner.

Mariani, Antonio; Epicoco, Italo; Cafaro, Massimo; Pulimeno, Marco