

PERSONAL INFORMATION

Marco Mancini



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WORK EXPERIENCE

01/12/2013–Present

Senior Scientist

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

- Leader of the “Production Platforms for Operational Services” (PPOS) research unit at the Advanced Scientific Computing (ASC) Division. PPOS is involved in R&D of innovative ICT digital platforms to support operational environments and eco-systems at CMCC in different sectors (agriculture, climate, disaster risk reduction, water management, etc.), with a focus on the integration of state-of-the-art information technologies, such as cloud computing, container orchestration, Internet of Things, advanced data acquisition/management and analytics, blockchain, AI.
- In charge of the design, development and deployment of an IoT-based service for optimal resource use efficiency (i.e., water, energy) and the maximization of productivity in citrus farming.
- Chief Technology Officer (CTO) of the Supercomputing Center (SCC) from November 2015 to November 2016, supporting the Director in the evaluation of new technologies for the improvement of HPC and Data Management services. In charge of the design, development and deployment of the CMCC Data Portal (<https://dataportal.cmcc.it/home>).

01/06/2012–01/06/2013

Senior Research Associate

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

- Leader of the Operational Group at OceanLab, leading the design and implementation of a data management framework for oceanographic products and services related to sea forecasting and safety marine navigation in the framework of the TESSA project (<http://tessa.linksmt.it>)
- In charge of the administration and management of Ocean Lab computational and storage resources for operational oceanographic services

09/2009–03/2012

Senior Research Fellow

University of Calabria, Rende (Italy)

- Development, performance analysis and optimization of computation fluid dynamics algorithms on multi-core and many-core architectures

02/2008–08/2009

Senior Systems Engineer

NEC Italy, Rende (Italy)

- In charge of the management of the supercomputing facilities at the Centro di Supercalcolo per l'Ingegneria Computazionale (University of Calabria)
- Development, performance analyses, optimization of numerical codes, relating to shallow water equations and based on finite volume methods on both Itanium-based and vector architectures
- Development of a high-performance computing platform for the simulation and 3D visualization of flood events on urban areas

04/2004–12/2007

Computer and Systems Engineer

Self-Employed, (Italy)

- End-to-end performance analyses, capacity planning and troubleshooting of large-scale mission-critical production systems for Web and OSS applications
- Development and implementation of automated processes to extract data from application logs for monitoring and alerting
- Design and development of web applications for back-office management and e-government

09/2002–09/2004

Adjunct Lecturer

Engineering Faculty, University of Calabria, Rende (Italy)

06/2001–06/2004

PostDoc

University of Calabria, Rende (Italy)

- Design and implementation of parallel algorithms, based on rollout techniques, for solving sequential ordering and job shop scheduling problems using C and MPI.

EDUCATION AND TRAINING

11/1997–03/2001

PhD in Computer and System Engineering

University of Calabria, Rende (Italy)

09/1990–07/1996

Master's Degree cum Laude in Computer Engineering

University of Bologna, Bologna (Italy)

PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

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

Communication skills

- Proclivity for verbal communication, effectively building and maintaining strong interpersonal relationships, ensuring that any technical explanation is suitable for their target audience

Organisational / managerial skills

- Good leadership skills

Job-related skills

- Excellent problem solving and analytical skills
- Easily adaptable to new and challenging environments
- Maintaining high standard of works whilst working under pressure

Computer-related skills

- As a Computer System Engineer, I am fluent in planning, designing, and managing technical infrastructure, in particular Linux clusters (Ubuntu, Debian, CentOS), HPC facilities (CPU- and GPU-based), private/public/hybrid cloud computing solutions (OpenNebula, Amazon AWS) and container management solutions (Docker, Kubernetes, Rancher), resource virtualization (VMware

EsXi, Qemu/KVM, libvirt), batch scheduling (SLURM/Torque/LSF), parallel and distributed scalable object storage (CEPH), parallel file system (GPFS), networking (TCP/IP, DNS, DHCP, iptables, Kerberos, SSH, VPN), data workflow management software (iRODS), configuration management for automated workflows (Ansible).

- As a Software Engineer, I am fluent in developing and supporting applications for Linux clusters, HPC facilities and distributed systems, programming (C/C++, Fortran, Go, Python, Java), code parallelisation for different architectures (OpenMP, MPI, CUDA) - debugging and profiling, knowledge of version control systems (Git) and CI/CD concepts and tools (Jenkins).
- I have practical experience with numerical and scientific libraries for the fast Fourier transform (FFTW, cuFFT) and for oceanographic data (netcdf), and tools for scientific visualization (Paraview, grads, ncl)
- I have practical experience with web applications and tools (apache, tomcat, jboss, nodejs, angularjs, mysql, postgresql, mongodb)

ADDITIONAL INFORMATION

Publications/Conferences

- A. D'Anca, L. Conte, P. Nassisi, C. Palazzo, R. Lecci, S. Creti, **M. Mancini**, et al. (2017), "A multi-service data management platform for scientific oceanographic products", Natural Hazards and Earth System Sciences, 2017
- G. Alfonsi, S.A. Ciliberti, **M. Mancini**, L. Primavera (2016) "Direct numerical simulation of turbulent channel flow on high-performance GPU computing system", Computation 2016, 4(1), 13; doi:10.3390/computation4010013
- **M. Mancini** (2017) "ONE-click deployment with Rancher", OpenNebula Conference 2017, Madrid, October 23-24.
- **M. Mancini** (2017), "Provisioning flexible and highly available iRODS-based data service at the Euro-Mediterranean Center on Climate Change Foundation", iRODS User Group Meeting 2017, Utrecht, June 13-15.
- **M. Mancini** (2016), "Provisioning Flexible and High Available Climate Data Services", OpenNebula Conference 2016, Barcelona, October 24-26.
- **M. Mancini** (2015), "Provisioning and Orchestrating Big Data and HPC Services with OpenNebula at CMCC", OpenNebula Conference 2015, Barcelona, October 20-22.
- M. Mirto, A. Mariello, A. Nuzzo, **M. Mancini**, A. Raolil, O. Marra, S. Fiore, C. Sirca, M. Salis, V. Bacciu, D. Spano, G. Aloisio, (2015) "The OFIDIA Fire Danger Rating System" Proceedings of 10th International Conference on P2P, PARALLEL, GRID, CLOUD and INTERNET COMPUTING, November 4-6, 2015, Krakow, Poland
- P. Vecchio, F. Mele, I. Epicoco, L. T. De Paolis, **M. Mancini**, G. Aloisio (2015) "Cloud Computing and Augmented Reality for Cultural Heritage", Chapter in Book "Augmented and Virtual Reality" Volume 9254 of the series Lecture Notes in Computer Science pp 51-60 Editors, Lucio Tommaso De Paolis, Antonio Mongelli
- **M. Mancini**, G. Aloisio (2015). "How Advanced Cloud Technologies can Impact and Change HPC Environments for Simulation", 2015 International Conference on High Performance Computing and Simulation, Amsterdam, July 20-24, 2015.
- M. Mirto, **M. Mancini**, A. Mariello, A. Raolil, O. Marra, S. Fiore, G. Aloisio (2015). "OFIDIA Operational Fire Danger Prevention Platform" (Demo), 2015 International Conference on High Performance Computing and Simulation, Amsterdam, July 20-24, 2015.
- M. Mirto, **M. Mancini**, A. Mariello, A. Raolil, O. Marra, C. Sirca, M. Salis, D. Spano, A. Bartzokas, S. Anastasiadis, S. Fiore, G. Aloisio (2015). "The OFIDIA Project: an operational fire danger prevention platform". Second International Conference on Fire Behaviour and Risk, Alghero, Sardinia, May 26-29, 2015.
- S. Fiore, **M. Mancini**, D. Elia, P. Nassisi, F. V. Brasileiro, I. Blanquer et al. (2015). "Big data analytics for climate change and biodiversity in the EUBrazilCC federated cloud infrastructure", Proceedings of the 12th ACM International Conference on Computing Frontiers, 52.
- **M. Mancini** (2014), "Managing Docker Containers with OpenNebula", Lightning talk, OpenNebula Conference 2014, Berlin, December 2-4.
- G. Alfonsi, S.A. Ciliberti, **M. Mancini**, L. Primavera (2014) "GPGPU implementation of mixed spectral-finite difference computational code for the numerical integration of the three-dimensional

time-dependent incompressible Navier–Stokes equations”, *Computers & Fluids*, Vol. 102, pp. 237-249.

- G. Coppini, N. Pinardi, P. Oddo, E. Awad, A. Bonaduce, E. Calcagnile, S. A. Ciliberti, I. Federico, M. B. Galati, R. Lecci, S. Liubartseva, **M. Mancini**, G. Mannarini, E. Shchekinova, G. Verri, (2013). “The operational research in support to decisional instruments”. Contribute to III Convegno Nazionale di Oceanografia Operativa, 3-5 June 2013, Oristano, Italy.
- G. Coppini, P. Marra, N. Pinardi, P. Oddo, G. Manzella, L. Perivoliotis, **M. Mancini**, R. Lecci, A. Bonaduce, M. B. Galati, M. Scalas, L. Tedesco, E. Pizzolante, R. Sorgente, A. Olita, L. Fazioli, A. Cucco, D. Rollo, G. Aloisio, S. Fiore, C. Palazzo, A. D’Anca, P. Nassisi, L. Conte, M. Tonani, M. Drudi, E. Awad, E. Calcagnile, S. A. Ciliberti, I. Federico, G. Mannarini, E. Shchekinova, G. Verri, S. Falchetti, F. Trotta, R. Archetti, M. Vacchi, A. Samaras, E. Fiori, (2013). “TESSA, IONIO and SeaConditions: to know the present and future sea conditions for safer navigation”. Contribute to III Convegno Nazionale di Oceanografia Operativa, 3-5 June 2013, Oristano, Italy.
- G. Alfonsi, S. A. Ciliberti, **M. Mancini**, L. Primavera (2012). “Turbulent events in wall-bounded turbulent flow”. *Journal of Flow Visualization & Image Processing*, 19(2), pp. 139-160.
- G. Alfonsi, S. A. Ciliberti, **M. Mancini**, L. Primavera (2011). “Performance of Navier-Stokes Solver on a Hybrid CPU/GPU Computing System”, in V. Malyskin (ed.), *Parallel computing technologies*, Lecture Notes in Computer Science, Vol. 6873, Springer Berlin Heidelberg, pp. 404-416.
- G. Alfonsi, S. A. Ciliberti, **M. Mancini**, L. Primavera (2011). “Hairpin vortices in turbulent channel flow”. *Procedia Computer Science*, 4 (2011), pp. 801–810.
- S. A. Ciliberti, F. Macchione, **M. Mancini** (2009). “High Performance Computing Techniques for Simulation of Urban Flooding Events”, in *Proceedings of 33rd IAHR Congress on Water Engineering for a Sustainable Environment*, Vancouver, British Columbia (Canada), August 9-14, 2009, pp. 2109 – 2116.
- L. Grandinetti, F. Guerriero, G. Lepera, **M. Mancini** (2007). “A Niche Genetic Algorithm to Solve a Pollutant Emission Reduction Problem in the Manufacturing Industry: a Case Study”, *Computers & Operations Research*, Vol. 34, Issue 7, pp. 2191-2214.
- F. Guerriero, **M. Mancini** (2005). “Parallelization Strategies for Rollout Algorithms”, *Computational Optimization and Applications*, Vol. 31, Issue 2, pp. 221 - 244.
- F. Guerriero, **M. Mancini** (2005). “Experimental Evaluation of Solution Approaches for the K-Route Maximum Flow Problem”, *Computers & Operations Research*, Vol. 32, pp. 2453–2478.
- F. Guerriero, **M. Mancini** (2003). “A Cooperative Parallel Rollout Algorithm for the Sequential Ordering Problem”, *Parallel Computing, Special Issue on Logistics*, Vol. 29, Issue 5, pp. 663-677.
- F. Guerriero, **M. Mancini** and R. Musmanno (2002). “New Rollout Algorithms for Combinatorial Optimization Problems”, *Optimization Methods and Software*, Taylor & Francis Group, Vol. 17, pp. 627-654.
- D. Conforti, **M. Mancini** (2001). “A Curvilinear Search Algorithm for Unconstrained Optimization by Automatic Differentiation”, *Optimization Methods and Software*, Vol. 15, Issue 3-4, 15 pp. 283 – 297.
- **M. Mancini** (2000). “Neuro-Dynamic Programming for Combinatorial Optimization: Models, Methods and Applications”, Ph.D. Thesis, University of Calabria.
- **M. Mancini** (2000). “A Parallel Hierarchical Approach for Automatic Differentiation”, in G. Corliss et al. (Eds.), *Automatic Differentiation of Algorithms: From Simulation to Optimization*, Computer and Information Science, Springer-Verlag, New York, NY, pp. 231-236.
- L. Grandinetti, D. Conforti, L. De Luca, **M. Mancini**, R. Musmanno (1997). “PARJEN96: A Parallel Software Tool for Automatic Differentiation”, in: L. Grandinetti et al. (Eds.), *Advances in High Performance Computing*, Kluwer Academic Publishers, printed in The Netherlands, pp. 89-113.

Memberships

OpenNebula Community Champion

IoT BDS (International Conference on Internet of Things, Big Data and Security) Program Committee Member