

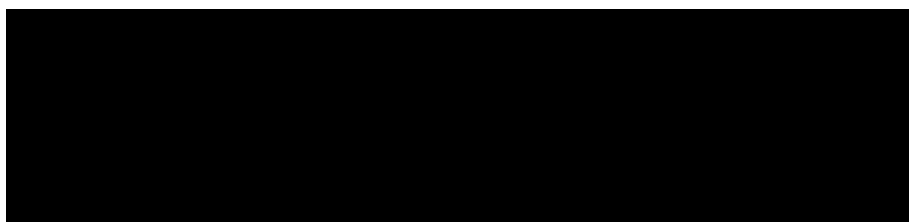


**Europass  
Curriculum Vitae**



**Personal information**

Surname(s) / First name(s) **ALOISIO, Giovanni**



**Occupational field**

Emeritus Professor of Computer Engineering  
Director CMCC Supercomputing Center  
Member of the CMCC Strategic Board

*Work experience*

*Dates* July 1978 – present

*Occupation or  
position held*

Full Professor of Computer Engineering at the Dept. of Innovation Engineering of the Univ. of Salento, Lecce from November 2003 to October 2022.

Emeritus Professor of Computer Engineering at the Dept. of Innovation Engineering of the Univ. of Salento, Lecce from February 2022.

*Main activities and  
responsibilities*

- High Performance Computing, Grid Computing and Exascale Computing, High Performance Data Analytics, Machine Learning
- Member of the Board of Directors of the Euro-Mediterranean Center on Climate Change (CMCC) from April 2005 to present.
- Member of the Executive Committee of the Euro-Mediterranean Center on Climate Change (CMCC) from December 2005 to August 2017.

- Member of Strategic Council of the Euro-Mediterranean Center on Climate Change (CMCC) from November 2014 to present.
- Director of the Supercomputing Center of the Euro-Mediterranean Center on Climate Change (CMCC) from 2005 to present.
- Delegate of the Rector for Information Systems & Services University of Salento (2014-2015)
- Delegate of the Rector for Research Internationalization & Fund Raising, University of Salento (2013-2014)
- Head of the Division “Scientific Computing and Operations” (SCO) at the Euro Mediterranean Center on Climate Change (CMCC), Italy (2005-2014)
- CeO of the SPACI (Southern Partnership for Advanced Computing Infrastructures) Consortium, Italy (2004-2016)
- Scientific coordinator of the OFIDIA (Operational Fire Danger prevention platform) project in the context of the European Territorial Cooperation Program Greece-Italy 2007-2013
- Scientific coordinator of the OFIDIA2 (Operational Fire Danger prevention platform) project in the context of the European Territorial Cooperation Program Greece-Italy 2014-2020
- Responsible for CMCC of the H2020 EESI exascale project
- Responsible for UniSalento of the H2020 EXDCI exascale project
- Responsible for CMCC of the H2020 EXDCI-2 exascale project
- Responsible for CMCC of the EU FP7 IS-ENES
- Responsible for CMCC of the H2020 EXDCI-2 exascale project
- Responsible for CMCC of the EU FP7 IS-ENES
- Member of the ENES (European Network for Earth system Modeling) HPC Task Force
- Chair of the European panel of experts on WCES (Weather, Climate and solid Earth Sciences) that has contributed to the PRACE strategic document "The Scientific Case for HPC in Europe 2015-2020"
- Responsible for ENES of the EU-FP7 EESI (European Exascale Software Initiative) project and Chair of the WCES (Weather, Climate and solid Earth Sciences) European Working Group
- Responsible for University of Salento (as PRACE Third Party) of the EU-FP7 EESI2 project and Chair of the WCES (Weather, Climate and solid Earth Sciences) European Working Group
- Leader of Task 3.2: “Weather, Climatology and Solid Earth Sciences” of the Work package 3: “Applications roadmap toward exascale” in the H2020 EU project EXCDI (European Extreme Data & Computing Initiative)
- Member of the IESP (International Exascale Software Project) working group
- CMCC scientific coordinator of the OFIDIA2 (Operational Fire Danger prevention platform) project in the context of the European Territorial Cooperation Program Greece-Italy 2014-2020
- Leader of the Task 3.2: “Engagement with HPC users communities and CoEs” of the Work package 3: “Excellence in HPC applications and usages” in the H2020 EU project EXCDI2 (European Extreme Data & Computing Initiative)
- Member of the NEMO Consortium Steering Committee
- Member of the SHYFEM Consortium Steering Committee

*Dates* April 1999 - October 2003  
*Occupation or position held* Associate Professor at the Dept. of Innovation Engineering of the Univ. of Lecce  
*Main activities and responsibilities* Design & implementation of grid comp. systems for dynamic EOS data access  
 Director of CACT (Center for Advanced Computational Technologies)  
 University of Lecce, Dept. of Innovation Engineering, Italy  
*Name and address of employer*

*Dates* January 1995 – Marzo 1999  
 Senior researcher at the Dept. of Mathematics of the University of Lecce, Italy

*Occupation or position held* Design of Metacomputing environments, Remote sensing data archives  
*Main activities and responsibilities* Senior Visiting Researcher at Caltech, Center for Advanced Computing Research  
*Name and address of employer* University of Lecce, Dept. of Mathematics, Italy

*Dates* November 1991 – December 1994

*Occupation or position held* Senior researcher at the Dept. of Electronics of the Polytechnic Inst. of Bari  
Visiting Researcher at Caltech, Center for Advanced Computing Research, USA

*Main activities and responsibilities* Design of parallel/pipeline multiprocessors systems, high perform. computing  
*Name and address of employer* Polytechnic Inst. of Bari, Dept. of Electronics, Italy

*Dates* January 1983 – October 1991

*Occupation or position held* Researcher at the Dept. of Electronics, Faculty of Engineering, University of Bari  
Visiting Researcher at Caltech, C3P (Caltech Concurrent Computation Program)

*Main activities and responsibilities* Real-time SAR (Synthetic Aperture Radar) data processing on hypercube parallel computers, performance optimization of FFTs algorithms  
*Name and address of employer* University of Bari, Faculty of Engineering, Dept. of Electronics, Italy

*Dates* August 1980 – December 1982

*Occupation or position held* Researcher at the Dept. of Physics of the University of Bari, Italy

*Main activities and responsibilities* Design and development of single bit multiprocessors systems  
*Name and address of employer* University of Bari, Department of Physics, Italy

*Dates* July 1978 - July 1980

*Occupation or position held* Researcher holding a grant by the INFN (Nat. Institute of Nuclear Physics), Italy

*Main activities and responsibilities* Design of specialized crate controllers Camac computer interfaces  
*Name and address of employer* INFN (National Institute of Nuclear Physics), Bari Section, Italy

### **Education and training**

*Dates* June 1977

*Title of qualification awarded* Laurea Degree cum Laude in Physics

*Principal subjects/occupational skills covered* physics, mathematics, electronics, computers architectures

**Name and type of organisation providing education and training** University of Bari. Faculty of Physics, Dept. of Physics, Italy

**Mother tongue** Italian

**Other language(s)**

Self-assessment European level (*)	Understanding		Speaking				Writing	
	Listening	Reading	Spoken interaction		Spoken production			
English	A1	Proficient user	B1	Proficient user	A1	Proficient user	A1	Proficient user

(\*) Common European Framework of Reference for Languages

**Social skills and competences** Mediating, facilitation of compromise solutions, leadership, networking

**Organisational skills and competences** Coordination of large international projects, personnel management

**Technical skills and competences** High Performance computing technologies, Performance optimization of parallel algorithms, Distributed Data management, Exascale computing

**Computer skills and competences** Software (Fortran, C++, MPI and Regular MAC OSX office programmes)  
Hardware (Design of Computer architectures)

**Publications** | **Source: Scopus**

G. Accarino, D. Donno, F. Immorlano, D. Elia, G. Aloisio, "An Ensemble Machine Learning Approach for Tropical Cyclone Localization and Tracking from ERA5 Reanalysis Data", *Earth and Space Science*, 2023, 10, e2023EA003106, 2023. DOI: 10.1029/2023EA003106

D. Elia, S. Scardigno, J. Ejarque, A. D'Anca, G. Accarino, E. Scoccimarro, D. Donno, D. Peano, F. Immorlano, and G. Aloisio. 2023. "End-to-End Workflows for Climate Science: Integrating HPC Simulations, Big Data Processing, and Machine Learning". In *Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis (SC-W 2023)*, November 12–17, 2023, Denver, CO, USA. ACM, New York, NY, USA, 11 pages. Doi: 10.1145/3624062.3624283.

D. Elia, C. Palazzo, S. Fiore, A. D'Anca, A. Mariello, G. Aloisio, "PyOphidia: A Python library for High Performance Data Analytics at scale", *SoftwareX*, Volume 24, 2023, 101538, ISSN 2352-7110, doi: 10.1016/j.softx.2023.101538.

D. Elia, F. Antonio, S. Fiore, P. Nassisi and G. Aloisio, "A Data Space for Climate Science in the European Open Science Cloud," in *Computing in Science & Engineering*, 2023, Doi: 10.1109/MCSE.2023.3274047.

Donatello Elia, Sandro Fiore, Fabrizio Antonio, Guillaume Levavasseur, Paola Nassisi, Alessandro D'Anca, Sylvie Joussaume, & Giovanni Aloisio, "An EOSC-enabled Data Space Environment for Climate Science", <https://doi.org/10.5281/zenodo.7883231> (on ZENODO).

Antonio, F., Elia, D., Giannotta, A., Nuzzo, A., Levavasseur, G., Ben Nasser, A., Nassisi, P., D'Anca, A., Fiore, S., Joussaume, S., and Aloisio, G, "ENES Data Space: an open, cloud-enabled data science environment for climate analysis", *EGU General Assembly 2022*, Vienna, Austria, 23–27 May 2022, EGU22-7330, <https://doi.org/10.5194/egusphere-egu22-7330>, 2022

Andrea Gatto, Valeria Aloisi, Gabriele Accarino, Francesco Immorlano and Giovanni Aloisio, "An Artificial Neural Network-based approach for predicting the COVID-19 daily effective reproduction number Rt in Italy", *AI* 2022, 3(1), 146-163; <https://doi.org/10.3390/ai3010009>

Jorge Ejarque, Rosa M. Badia, Loic Albertin, Giovanni Aloisio, et al, "Enabling dynamic and intelligent workflows for HPC, data analytics, and AI convergence", *Future Generation Computer Systems*, Volume 134, 2022, Pages 414-429, ISSN 0167-739X, <https://doi.org/10.1016/j.future.2022.04.014>

Gabriele Accarino, Marco Chiarelli, Francesco Immorlano and Giovanni Aloisio, "MSG-GAN-SD: A Multi-Scale Gradients GAN for statistical downscaling of 2-meter temperature over the EURO-CORDEX domain", *AI* **2021**, 2(4), 600-620; <https://doi.org/10.3390/ai2040036>

Aloisi, V., Gatto, A., Accarino, G., Donato, F., and Aloisio, G., "The effect of known and unknown confounders on the relationship between air pollution and Covid-19 mortality in Italy: A sensitivity analysis of an ecological study based on the E-value", 2021, *Environmental Research*, 112131, ISSN 0013-9351, DOI: <https://doi.org/10.1016/j.envres.2021.112131>

Gatto, A., Accarino, Aloisi, V., Donato, F., and Aloisio, G., "A hybrid approach based on SEIR model and Artificial Intelligence to forecast the 2nd wave of COVID-19 hospitalizations in Lombardy, Italy", *Informatics* 2021, 8(3), 57; <https://doi.org/10.3390/informatics8030057>

Accarino, G., Chiarelli, M., Fiore, S., Federico, I., Causio, S., Coppini, G., Aloisio, G., "A multi-model architecture based on Long Short-Term Memory neural networks for multi-step sea level forecasting" *Future Generation Computer Systems (FGCS)*, Volume 124, 2021, Pages 1-9, ISSN: 0167-739X, DOI: <https://doi.org/10.1016/j.future.2021.05.008>.

Micaletto, G., Barletta, I., Mocavero, S., Federico, I., Epicoco, I., Verri, G., Coppini, G., Schiano, P., Aloisio, G. and Pinardi, N., "Parallel Implementation of the SHYFEM Model", *Geoscientific Model Development (GMD) gmd-2021-319*

Elia, D., Fiore, S., Aloisio, G., "Towards HPC and Big Data Analytics Convergence: Design and Experimental Evaluation of a HPDA Framework for eScience at Scale", *IEEE Access*, vol. 9, pp. 73307-73326, 2021, Doi: 10.1109/ACCESS.2021.3079139

Accarino, G., Lorenzetti, S., Aloisio, G., "Assessing correlations between short-term exposure to atmospheric pollutants and COVID-19 spread in all Italian territorial areas" (2021) *Environmental Pollution*, 268, art. no. 115714, DOI: 10.1016/j.envpol.2020.115714

Mancini, M., Nassisi, P., Trabucco, A., Meloni, A., Toli, K., Bacciu, V., Aloisio, G., Spano, D., Mereu, S. An open source and low-cost internet of things-enabled service for irrigation management (2019) Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, 2019-October, art. no. 8914230, pp. 1714-1719. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076726903&doi=10.1109%2fSMC.2019.8914230&partnerID=40&md5=fe06b25349c7d33f4c908db04a571e9a>

A. S Alic, J. Almeida, G. Aloisio, N. Andrade, N. Antunes, D. Ardagna, R. M. Badia, T. Basso, I. Blanquer, T. Braz, A. Brito, D. Elia, et al. "BIGSEA: A Big Data analytics platform for public transportation information", *Future Generation Computer Systems*, vol. 96, 2019, pp. 243-269, ISSN 0167-739X. Doi: 10.1016/j.future.2019.02.011

Fiore, S., Elia, D., Blanquer, I., Brasileiro, F.V., Nuzzo, A., Nassisi, P., Rufino, I.A.A., Seijmonsbergen, A.C., Anders, N.S., de O. Galvão, C., de B.L. Cunha, J.E., Caballer, M., Sousa-Baena, M.S., Canhos, V.P., Aloisio, G. BioClimate: A Science Gateway for Climate Change and Biodiversity research in the EUBrazilCloudConnect project (2019) *Future Generation Computer Systems*, 94, pp. 895-909. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85039940829&doi=10.1016%2fj.future.2017.11.034&partnerID=40&md5=0a5fc0b0d1332035bb58c14c6b57e521>

S. Fiore, D. Elia, C. E. Pires, I. Blanquer, W. Meira, G. Aloisio et al, "An Integrated Big and Fast Data Analytics Platform for Smart Urban Transportation Management". *IEEE Access*, vol. 7, pp. 117652-117677, 2019. doi: 10.1109/ACCESS.2019.2936941.

Pulimeno, M., Epicoco, I., Cafaro, M., Melle, C., Aloisio, G., "Parallel Mining of Correlated Heavy Hitters on Distributed and Shared-Memory Architectures" (2019) Proceedings - 2018 IEEE International Conference on Big Data, Big Data 2018, art. no. 8622201, pp. 5111-5118. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062632089&doi=10.1109%2fBigData.2018.8622201&partnerID=40&md5=dbc6e1b0563b34b328d0698da1a2096>

Fiore, S., Elia, D., Palazzo, C., Dranca, A., Antonio, F., Williams, D.N., Foster, I., Aloisio, G., "Towards an Open (Data) Science Analytics-Hub for Reproducible Multi-Model Climate Analysis at Scale" (2019) Proceedings - 2018 IEEE International Conference on Big Data, Big Data 2018, art. no. 8622205, pp. 3226-3234. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062621546&doi=10.1109%2fBigData.2018.8622205&partnerID=40&md5=eb7ceb91163372ffb63b2ba3173e20d9>

Fiore, S., Elia, D., Palazzo, C., Antonio, F., D'Anca, A., Foster, I., Aloisio, G., "Towards High Performance Data Analytics for Climate Change", (2019) *Lecture Notes in Computer Science* (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 11887 LNCS, pp. 240-257.

[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076836653&doi=10.1007%2f978-3-030-34356-9\\_20&partnerID=40&md5=5f80744c0ab09e3f2f6d217ce5976f70](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076836653&doi=10.1007%2f978-3-030-34356-9_20&partnerID=40&md5=5f80744c0ab09e3f2f6d217ce5976f70)

Epicoco, I., Mocavero, S., Porter, A.R., Pickles, S.M., Ashworth, M., Aloisio, G., "Hybridisation strategies and data structures for the NEMO ocean model" (2018) *International Journal of High Performance Computing Applications*, 32 (6), pp. 864-881.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85056750306&doi=10.1177%2f1094342016684930&partnerID=40&md5=e8d56789ca4ddaa8391d62ea57b67a48>

Cafaro, M., Pulimeno, M., Epicoco, I., Aloisio, G., "Parallel space saving on multi- and many-core processors", (2018) *Concurrency Computation*, 30 (7), art. no. e4160  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85018987900&doi=10.1002%2fcpe.4160&partnerID=40&md5=8213023dd9f1f8ccda6c1ac3780890c5>

Pulimeno, M., Epicoco, I., Cafaro, M., Melle, C., Aloisio, G., "Parallel mining of correlated heavy hitters", (2018) *Lecture Notes in Computer Science* (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 10964 LNCS, pp. 627-641.  
[https://www.scopus.com/inward/record.uri?eid=2-s2.0-85049976155&doi=10.1007%2f978-3-319-95174-4\\_48&partnerID=40&md5=8c4fd82ce9ca8d56636fbed204b6de15](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85049976155&doi=10.1007%2f978-3-319-95174-4_48&partnerID=40&md5=8c4fd82ce9ca8d56636fbed204b6de15)

Cafaro, M., Epicoco, I., Pulimeno, M., Aloisio, G., "On Frequency Estimation and Detection of Frequent Items in Time Faded Streams", (2017) *IEEE Access*, 5, art. no. 8091102, pp. 24078-24093.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85033407551&doi=10.1109%2fACCESS.2017.2757238&partnerID=40&md5=44fcbd8581b201917bb13a7ff3394a94>

Cafaro, M., Epicoco, I., Aloisio, G., Pulimeno, M., "CUDA based parallel implementations of space-saving on a GPU", (2017) *Proceedings - 2017 International Conference on High Performance Computing and Simulation, HPCS 2017*, art. no. 8035147, pp. 707-714.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85032379771&doi=10.1109%2fHPCS.2017.108&partnerID=40&md5=8def140f91df290e201f0614770e00f7>

D'Anca, A., Palazzo, C., Elia, D., Fiore, S., Bistinas, I., Bottcher, K., Bennett, V., Aloisio, G., "On the Use of In-memory Analytics Workflows to Compute eScience Indicators from Large Climate Datasets", (2017) *Proceedings - 2017 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, CCGRID 2017*, art. no. 7973812, pp. 1035-1043.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85027443453&doi=10.1109%2fCCGRID.2017.132&partnerID=40&md5=285e3289b7e2933ce3328a961e83dacf>

Fiore, S., Palazzo, C., D'Anca, A., Elia, D., Londero, E., Knapic, C., Monna, S., Marcucci, N.M., Aguilar, F., Plóciennik, M., Marco De Lucas, J.E., Aloisio, G., "Big data analytics on large-scale scientific datasets in the INDIGO-DataCloud project", (2017) *ACM International Conference on Computing Frontiers 2017, CF 2017*, pp. 343-348.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85027000189&doi=10.1145%2f3075564.3078884&partnerID=40&md5=ac8699e56047c8df542d8b575e7d3cde>

Coppini, G., Marra, P., Lecci, R., Pinardi, N., Creti, S., Scalas, M., Tedesco, L., D'Anca, A., Fazioli, L., Olita, A., Turrisi, G., Palazzo, C., Aloisio, G., Fiore, S., Bonaduce, A., Vittal Kumkar, Y., Angela Ciliberti, S., Federico, I., Mannarini, G., Agostini, P., Bonarelli, R., Martinelli, S., Verri, G., Lusito, L., Rollo, D., Cavallo, A., Tumolo, A., Monacizzo, T., Spagnolo, M., Sorgente, R., Cucco, A., Quattrocchi, G., Tonani, M., Drudi, M., Nassisi, P., Conte, L., Panzera, L., Navarra, A., Negro, G., "SeaConditions: A web and mobile service for safer professional and recreational activities in the Mediterranean Sea" (2017) *Natural Hazards and Earth System Sciences*, 17 (4), pp. 533-547.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85017590840&doi=10.5194%2fnhess-17-533-2017&partnerID=40&md5=787f0e73b8b7968ee52a09c33d9b525f>

D'Anca, A., Conte, L., Nassisi, P., Palazzo, C., Lecci, R., Creti, S., Mancini, M., Nuzzo, A., Mirto, M., Mannarini, G., Coppini, G., Fiore, S., Aloisio, G., "A multi-service data management platform for scientific oceanographic products" (2017) *Natural Hazards and Earth System Sciences*, 17 (2), pp. 171-184.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85012915382&doi=10.5194%2fnhess-17-171-2017&partnerID=40&md5=867cc9577d95c7f738d752d5349bfab7>

Balaji, V., Maisonnave, E., Zadeh, N., Lawrence, B.N., Biercamp, J., Fladrich, U., Aloisio, G., Benson, R., Caubel, A., Durachta, J., Foujols, M.-A., Lister, G., Mocavero, S., Underwood, S., Wright, G., "CPMIP: Measurements of real computational performance of Earth system models in CMIP6" (2017) *Geoscientific Model Development*, 10 (1), pp. 19-34.  
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85008873520&doi=10.5194%2fgmd-10-19-2017&partnerID=40&md5=0d7c877884d88cdf267dadd40540f4c0>

