Pasquale De Luca

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ResearchGate: https://www.researchgate.net/profile/Pasquale_De_Luca2
Google Scholar: https://scholar.google.it/citations?user=8jw-QKwAAAAJ&hl=it&oi=sra
Scopus: https://www.scopus.com/authid/detail.uri?authorId=57212090307

Current positions

Assistant teaching , Courses: Scientific Computing – Numerical Computing – Parallel and Distributed Computing – High Performance Computing, Parthenope University of Naples

Ph.D. Student , XXXVII cycle in Environment, Resource and Sustainable Development – Parthenope University of Naples

Areas of specialisation

High Performance Computing; Numerical Analysis

Education

2022-2023 Research stay at University Carlo III of Madrid, Department of Mathematics (3 months), under supervision of Professors Luis Bonilla and Manuel Carretero. Started November 1, 2022 – Ended January 31, 2023

2021 - present Ph.D. student (XXXVII Cycle) of "International Ph.D. Environment, Resource and Sustainable Development" at Parthenope University of Naples
Under supervision of: Prof. G. Giunta and A. Galletti

2018- 2021 M.Sc. cum laude in Computer Science curriculum “Cloud Computing", University of Salerno, Italy
Thesis: Numerical simulation of a fractional diffusion problem in GPU environment.

Supervisor: Prof. Beatrice Paternoster, Prof. Angelamaria Cardone

2019-2019 Scholarship holder in LSDA project *"Algoritmi numerici e software per il trattamento di dati su larga scala in ambienti HPC"*, University of Naples "Parthenope", Italy

2019-2019 Programming Distributed Computing Platforms with COMPs, Polytechnic University of Catalonia (UPC), Barcelona, Spain

2012-2018 B.Sc. in Computer Science, University of Naples “Parthenope", Italy
Thesis: Spatio-temporal interpolation using the Kriging method in CUDA environment
Supervisor: Prof. Livia Marcellino

Additional schools joint

2023 Ph.D course - Anomalous Diffusion: Modelling, Analysis, and Numerical Methods (Prof. Lehel Banjai), University of Salerno, November, 27–30, 2023
2023 Ph.D course - Splitting methods for the time integration of Parabolic PDEs of Advection Diffusion Reaction type (Prof. S. Gonzalez-Pinto), University of Salerno, September, 18–27, 2023
2022 Nature Masterclass Training for researchers & scientists - online course
2021 High Performance Computing and Quantum Computing - CINECA, online course
2021 School on Numerical Methods for Parallel CFD - CINECA, online course
2021 Quantum computer programming with QSkit - IBM & CRUI, online course
2021 17th Advanced School on Parallel Computing, Cineca, Bologna, Italy
2021 Managing distributed data with Hecuba and dataClay, Barcelona Supercomputing Center, Barcelona, Spain
2020 16th Advanced School on Parallel Computing, Cineca, Bologna, Italy
2019 PATC Course: Programming Distributed Computing Platforms with COMPSs, Barcelona Supercomputing Center, Barcelona, Spain
2018 High Performance Molecular Dynamics, Cineca, Roma, Italy
2018 Parallelizing Code on MATLAB - Cineca Academy, Cineca, Bologna, Italy
2017 3rd School on Scientific data analytics and Deep Learning, Cineca, Roma, Italy
2017 Intel Workshop on TensorFlow and Machine Learning, Adalta Software, Milano, Italy
2017 13th Advanced School on Parallel Computing, Cineca, Bologna, Italy
2016 Tools and Techniques for massive data analysis, Cineca, Roma, Italy
2016 Introducing to Technical and Scientific Computing in C, Cineca, Italy

Awards

July 2023 Selected as participant at International High-Performance Summer School (IHPCSS 2023), July 9 –14 2023, held at Georgia Tech Hotel and Conference Center, Atlanta, GA (USA).

Active projects

Any.

Past projects

2023 Title: *Advanced parallel numerical methods for environmental problems* (APNE2023)
Principal Investigator (PI): Pasquale De Luca
Host: CINECA, Bologna, Italy
2022 Title: *Distributed Accelerated Techniques for Exoplanets Hunting* (DATEH21)
Principal Investigator (PI): Pasquale De Luca
Host: CINECA, Bologna, Italy
2021 Title: *Accelerated High Performance Methods for compressing Next-Generation sequencing data* (AHNG20)

Principal Investigator (PI): Pasquale De Luca
Host: CINECA, Bologna, Italy

Professional activity

Editorial activity

2022 - present *Reviewer*, Microprocessors and Microsystems, Springer
2022 - present *Reviewer*, Information Sciences, Springer
2022 - present *Reviewer*, Journal of Supercomputing, Springer
2021 - present *Reviewer*, Journal of Computational Science, Elsevier
2021 - present *Reviewer*, Appied Sciences, MDPI
2021 - present *Reviewer*, Algorithms, MDPI
2021 - present *Reviewer*, Informatics, MDPI
2021 - present *Reviewer*, Electronics, MDPI
2019-2020 *Lead Guest Editor*, Special Issue of *High Performance Computing Methods Suitable for Machine Learning Applications* in *International Journal of Science, Technology and Society* (Impact Factor (2017): 0.707)
2020- present *Reviewer*, IEEE Transaction on Parallel and Distributed System
2019- present *Reviewer*, IEEE Transactions on Computers
2019- present *Reviewer*, Computational, MDPI
2018- present *Reviewer*, IEEE Access

Teaching activity

2024 - present Assistant Teaching of Numerical Computing course in Bachelor degree of Engineering and Computer Science for Cybersecurity programme at Parthenope University of Naples (Prof. L. Marcellino)
2022 - present Assistant Teaching of High-Performance Computing course in Master degree of Applied Computer Science programme at Parthenope University of Naples (Prof. L. Marcellino)
2021- present Assistant Teaching of Numerical Computing course in Bachelor degree of Computer Science programme at Parthenope University of Naples (Prof. G. Giunta)
2021- present Assistant Teaching of Numerical Computing course in Bachelor degree of Naval Science programme at Parthenope University of Naples (Prof. A. Galletti)
2021- present Assistant Teaching of Parallel and Distributed Computing course in Bachelor degree of Computer Science programme at Parthenope University of Naples (Prof. L. Marcellino)
2021- present Assistant Teaching of Mathematics and Statistics course in Bachelor degree of Biological Sciences programme at Parthenope University of Naples (Prof. G. Galletti)
2021 - present Assistant Teaching of Scientific Computing course in Master degree of Applied Computer Science programme at Parthenope University of Naples (Prof. G. Giunta)
2021 - present Assistant Teaching of High-Performance Computing course in Master degree of Applied Computer Science programme at Parthenope University of Naples (Prof. L. Marcellino)
2021 Assistant teaching laboratory of Parallel and Distributed Computing course in Computer Science bachelor at University of Naples Parthenope (Prof. L. Marcellino)
2021 Assistant teaching laboratory of Numerical Computing course in Computer Science bachelor at University of Naples Parthenope (Prof. A. Galletti)
2020 Assistant teaching laboratory of Numerical Computing course in Computer Science bachelor at University of Naples Parthenope (Prof. A. Galletti)
2020 Assistant teaching laboratory of Parallel and Distributed Computing course in Computer Science bachelor at University of Naples Parthenope (Prof. L. Marcellino)

Organization activity

2023 Program committee member of NAMDAC held in SITIS 2023 conference, 16-TH INTERNATIONAL CONFERENCE ON SIGNAL IMAGE TECHNOLOGY & INTERNET BASED SYSTEMS, Bangkok, Thailand – November, 8-10 2023 https://www.sitis-conference.org/2023/contribute/workshops/namdac/
2023 Program committee member of ICCS 2023 - International Conference on Computational Sciences MLDADS - July,

2–4, 2023, – Malaga

2022 Program committee member of NAMDAC held in SITIS 2022 conference, 16-TH INTERNATIONAL CONFERENCE ON SIGNAL IMAGE TECHNOLOGY & INTERNET BASED SYSTEMS, Dijon, France – October, 18-21 2022 https://www.sitis-conference.org/2022/contribute/workshops/namdac/

2022 Program committee member of ICCS 2022 - International Conference on Computational Sciences MLDADS - 21–23 June, 2022, – London

2022 Organizer of workshop: "NuComBHDA: The 1° International Workshop on Advanced Numerical Computations for Big Human Data Analysis" hosted @ PETRA2022– June 29, July 1 – Corfu', Grece

2021 - present Member of Gruppo Nazionale di Calcolo Scientifico (GNCS)

2021 - present Member of SIMAI (Società Italiana di Matematica Applicata e Industriale)

2021 Member of Exoplanet National Team, Naples, Italy. Institutions: Parthenope University of Naples, Naples, Italy; University of Naples Federico II, Naples, Italy. https://sites.google.com/view/exoplanats/home

2021 - present Member of Program Committee of WorldS4, London, UK https://worlds4.co.uk/committees.php

2021 - present Member of Program Committee of ICICT, London, UK https://icict.co.uk/committees.php#tab4

2021 - present Member of Program Committee of SmartCom, Greece, Europe https://smartcomconference.com/committee.php#tab04

2021 Member of Program Committee of Future Technologies Conference 2021 - 28-29 October, 2021 – Vancouver, USA https://saiconference.com/FTC2021/CommitteeProfile/8ae41833-f2b5-4d26-88a0-d86242666bea

2021 Member of Program Committee of Computing Conference 2021 - 16-17 July, 2021 – London, UK https://saiconference.com/Computing2021/CommitteeProfile/8ae41833-f2b5-4d26-88a0-d86242666bea

2020 Member of Program Committee of Intelligent Systems Conference (IntelliSys) 2021 - 2-3 September, 2021 – Amsterdam, NE https://saiconference.com/intellisys2021/CommitteeProfile/8ae41833-f2b5-4d26-88a0-d86242666bea

2019 Member of Program Committee of NAMDAC 2019 Workshop (4th International Workshop on Numerical Algorithms and Methods for Data Analysis and Classification) collocated with SITIS 2019 - The 15th International Conference on SIGNAL IMAGE TECHNOLOGY & INTERNET BASED SYSTEMS – http://www.sitis-conf.org/en/namdac-2019.php

2018 - present IEEE Member

Publications & talks

Journal articles

2023 A. Cardone, P. De Luca, A. Galletti, L. Marcellino, Solving Time-Fractional reaction–diffusion systems through a tensor-based parallel algorithm, Physica A: Statistical Mechanics and its Applications, Volume 611, 2023, 128472, ISSN 0378-4371, https://doi.org/10.1016/j.physa.2023.128472

2022 Cacciapuoti, L., Inno, L., Covone, G., . . ., De Luca, P. TESS discovery of a super-Earth and two sub-Neptunes orbiting the bright, nearby, Sun-like star HD 22946. Astronomy & Astrophysics Journal, A85 – 21. https://doi.org/10.1051/0004-6361/202243565

2022 De Luca, P., Galletti, A. & Marcellino, L. GPU-CUDA Implementation of the Third Order Gaussian Recursive Filter. SN COMPUT. SCI. 3, 78 (2022). https://doi.org/10.1007/s42979-021-00960-7

2021 De Luca, P., Galletti, A., Giunta, G., & Marcellino, L. (2021). Recursive Filter based GPU algorithms in a Data Assimilation scenario. Journal of Computational Science, 101339.

Conferences articles

2023 De Luca, P., Galletti, A., & Marcellino, L. (2023, November). Energy performance profiling of a GPU-based CPM implementation. In 2023 17th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS) (pp. 417-421). IEEE Computer Society.

2023 Fiscale, S., Inno, L., Ciaramella, A., Ferone, A., Rotundi, A., De Luca, P., . . . & Covone, G. (2023). Identifying Exoplanets in TESS Data by Deep Learning. In Applications of Artificial Intelligence and Neural Systems to Data Science (pp. 127-135). Singapore: Springer Nature Singapore.

2022 V. D'Aló and P. De Luca, "Performance evaluation of a many/multi-core implementation for signal filtering problem," 2022 16th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), Dijon, France, 2022, pp. 535-538,

2022 P. De Luca, A. Galletti and L. Marcellino, "An accelerated algorithm for ECG signal denoising," 2022 16th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), Dijon, France, 2022, pp. 530-534,

2022 Conte, D., De Luca, P., Galletti, A., Giunta, G., Marcellino, L., Pagano, G., Paternoster, B. (2022). First Experiences on Parallelizing Peer Methods for Numerical Solution of a Vegetation Model. In: Gervasi, O., Murgante, B., Hendrix, E.M.T., Taniar, D., Apduhan, B.O. (eds) Computational Science and Its Applications – ICCSA 2022. ICCSA 2022. Lecture Notes in Computer Science, vol 13376. Springer, Cham.
https://doi.org/10.1007/978-3-031-10450-3_33

2022 Pasquale De Luca, Diana Di Luccio, Ardelio Galletti, Giulio Giunta, Livia Marcellino, and Raffaele Montella. 2022. Towards a GPU parallel software for environmental data fitting. In The15th International Conference on PErvasive Technologies Related to Assistive Environments (PETRA '22). Association for Computing Machinery, New York, NY, USA, 469–472. https://doi.org/10.1145/3529190.3534776

2022 De Luca, P., Galletti, A., Marcellino, L. (2022). A GPU-Based Algorithm for Environmental Data Filtering. In: Groen, D., de Mulatier, C., Paszynski, M., Krzhizhanovskaya, V.V., Dongarra, J.J., Sloot, P.M.A. (eds) Computational Science – ICCS 2022. ICCS 2022. Lecture Notes in Computer Science, vol 13353. Springer, Cham.

2022 De Luca, P., Di Mauro, A., Fiscale, S. (2022). On Next-Generation Sequencing Compression via Multi-GPU. In: Camacho, D., Rosaci, D., Sarné, G.M.L., Versaci, M. (eds) Intelligent Distributed Computing XIV. IDC 2021. Studies in Computational Intelligence, vol 1026. Springer, Cham. https://doi.org/10.1007/978-3-030-96627-0_42

2022 De Luca, P., Galletti, A., & Marcellino, L. (2022). A Novel GPU Implementation for Image Stripe Noise Removal. In Intelligent Computing (pp. 232-243). Springer, Cham.

2021 Fiscale S., De Luca, P., Inno, L., Marcellino, L., Galletti, A., Rotundi A., Ciaramella A., Covone G., Quintana E. (2021) A GPU Algorithm for Outliers Detection in TESS Light Curves. In: Paszynski M., Kranzlmüller D., Krzhizhanovskaya V.V., Dongarra J.J., Sloot P.M. (eds) Computational Science – ICCS 2021. ICCS 2021. Lecture Notes in Computer Science, vol 12746. Springer, Cham.

2020 Amich, Monica, De Luca, Pasquale, and Fiscale Stefano. "Accelerated implementation of FQSqueezer novel genomic compression method." 2020 19th International Symposium on Parallel and Distributed Computing (ISPDC). IEEE, 2020.

2020 De Luca, Pasquale, Ardelio Galletti, and Livia Marcellino. "PARALLEL SOLVERS COMPARISON FOR AN INVERSE PROBLEM IN FRACTIONAL CALCULUS." 2020 Proceeding of 9th International Conference on Theory and Practice in Modern Computing (TPMC 2020). 2020.

2020 De Luca P., Formisano A. (2020) Haptic Data Accelerated Prediction via Multicore Implementation. In: Arai K., Kapoor S., Bhatia R. (eds) Intelligent Computing. SAI 2020. Advances in Intelligent Systems and Computing, vol 1228.

Springer, Cham.

2020 De Luca P., Galletti A., Giunta G., Marcellino L. (2020) Accelerated Gaussian Convolution in a Data Assimilation Scenario. In: Krzhizhanovskaya V. et al. (eds) Computational Science – ICCS 2020. ICCS 2020. Lecture Notes in Computer Science, vol 12142. Springer, Cham.

2020 De Luca, P., Galletti, A., Ghehsareh, H.R., Marcellino, L., & Raei, M. A gpu-cuda framework for solving a two-dimensional inverse anomalous diffusion problem. In: Foster, I., Joubert, G.R., Kučera, L., Nagel, W.E., Peters, F. (eds) Parallel Computing: Technology Trends, Advances in Parallel Computing. Vol 36. pp 311 - 320. IOS Press, 2020.

2019 P. De Luca, A. Galletti and L. Marcellino, "A Gaussian Recursive Filter Parallel Implementation with Overlapping", 2019 15th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), Sorrento, Italy, 2019, pp. 633-640.

2019 P. De Luca, A. Galletti, G. Giunta, L. Marcellino, M. Raei – "Performance analysis of a multicore implementation for solving a two dimensional inverse anomalous diffusion problem". NUMTA 2019 (3rd International Conference and Summer School of Numerical Computations: Theory and Algorithms). Isola di Capo Rizzuto (KR), Italy, June 15-21, 2019.

2019 De Luca, P., Fiscale, S., Landolfi, L., & Di Mauro, A. (2019, October). Distributed Genomic Compression in MapReduce Paradigm. In International Conference on Internet and Distributed Computing Systems (pp. 369-378). Springer, Cham.

Talks

I was been speaker at following conferences:

2023 SITIS 2023 - The 17th International Conference on SIGNAL IMAGE TECHNOLOGY & INTERNET BASED SYSTEMS, Bangkok, Thailand, November, 8–10, 2023

2023 IMACS 2023 - Numerical and parallel issues for cellular behavior prediction. Roma, Italy, September 11–15, 2023

2023 ITADATA 2023 - Some experiences on parallelizing the Evolution of Cellular Potts Models. Naples, Italy, September 11–13, 2023

2023 ITADATA 2023 - GPU-Accelerated Environmental Data Fitting. Naples, Italy, September 11–13, 2023

2023 SIMAI 2023 - Solving numerical problems arising in environmental modeling through parallel strategies, Matera (MT), Italy, August 28–30, 2023

2023 NUMTA 2023 - Towards a parallel code for cellular behavior in vitro prediction, Pizzo (VV), Italy, June 14–20, 2023

2022 SITIS 2022 - An Accelerated Algorithm for ECG Signal Denoising, in NAMDAC 2022 Workshop, Dijon France, October 19–21, 2022

2022 SITIS 2022 - Performance Evaluation of a ManyMulti-core Implementation for Signal Filtering Problem, in NAMDAC 2022 Workshop, Dijon France, October 19–21, 2022

2022 YAMC 2022 - A case study in numerical linear algebra: some parallel algorithms for most recent high performance architectures, Arenzano, Italy 18–22 September, 2022

2022 ICCSA 2022 - First experiences on parallelizing peer methods for numerical solution of a vegetation model, Malaga, Spain 4–7 July, 2022

2022 PETRA 2022 in NuComBHDA workshop - Towards a GPU parallel software for environmental data fitting, Corfu, Greece June 29 – July 01, 2022

2022 ICCS 2022 in MLDADS workshop – A GPU-Based Algorithm for Environmental Data Filtering, London, UK June 20-23 , 2022

2021 Presentation "La transizione dal Sistema Solare Interno a quello Esterno, fino ad altri sistemi planetari" at "XXXV Edizione di Futuro Remoto 2021", Nov 27, 2021.

2021 On Next-Generation Sequencing compression via Multi-GPU – 14th International Symposium on Intelligent Distributed Computing (IDC2021) – 16th-18th September 2021

2021 GPU solutions for time fractional diffusion systems – SIMAI2020+2021 – September 2, Parma, Italy

2021 Computing Conference 2021 – London, UK

2021 ICCS 2021 – INTERNATIONAL CONFERENCE ON COMPUTATIONAL SCIENCE – Krakow, Poland

2020 ISPDC 2020 – 19th International Symposium on Parallel and Distributed Computing (ISPDC 2020) 5–8 July in Warsaw, Poland

2020 TPMC 2020 – 9th International Conference on Theory and Practice in Modern Computing 23 – 25 July 2020 Zagreb, Croatia

2020 Computing Conference 2020 – 16-17 July, 2020 - London, UK

2020 ISPDC 2020 – 19th International Symposium on Parallel and Distributed Computing (ISPDC 2020) 5–8 July in Warsaw, Poland

2020 ICCS 2020 – INTERNATIONAL CONFERENCE ON COMPUTATIONAL SCIENCE Amsterdam, The Netherlands 3-5 June, 2020

2019 NUMTA 2019 (3rd International Conference and Summer School of Numerical Computations: Theory and Algorithms). Isola di Capo Rizzuto (KR), Italy, June 15-21, 2019.

2019 ParCo 2019 - International Conference on Parallel Computing, Prague, Czech Republic, 10-13 September 2019

2019 IDCS2019 - The 12th International Conference on Internet and Distributed Computing Systems, Italy, Naples, October 10-12

2019 SITIS 2019 - The 15th International Conference on SIGNAL IMAGE TECHNOLOGY & INTERNET BASED SYSTEMS, Italy, Sorrento, November 26-29

Invited Talks

2021 Accelerated Gaussian Convolution for Dynamical System and Data Assimilation – DataLearning Working Group at Imperial College Londok UK – 19th January 2021

2021 Towards a Multi-GPU approach for genomic data compression – International Webinar on Smart Grid & Green Energy System – November 15-16, 2021. Invited speaker.

Posters

2024 Accelerating a RBF-based method for 3D surface reconstruction though Julia programming - CALCOLO SCIENTIFICO E MODELLI MATEMATICI ALLA RICERCA DELLE COSE NASCOSTE ATTRAVERSO LE COSE MANIFESTE, 29–31 January 2024, Centro Congressi Federico II, via Partenope, Naples

Languages

English: fluent (ESB C2 certificate)
Italian: fluent (native)

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base all'art. 13 del D. Lgs. 196/2003 e all'art. 13 del Regolamento UE 2016/679 relativo alla protezione delle persone fisiche con riguardo al trattamento dei dati personali.

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