PAOLO VIVIANI

PhD - Senior Reasearcher

♥ Torino, ITALY

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% paoloviviani.github.io



EDUCATION

Ph.D. in Computer Science

University of Torino, Computer Science Dept.

2015 - 2019

♥ Torino, IT

Thesis: Deep Learning at Scale with Nearest Neighbours Communications. Supervisor: Marco Aldinucci. Funded by Noesis Solutions.

• Co-supervisor of one M.Sc. Thesis

Master's Degree in Theoretical physics

University of Torino, 104/110

2015

♥ Collegio Universitario "R. Einaudi", Torino

Scholarship winner: "Piano Lauree Scientifiche 2008", granted by Società Italiana di Fisica.



EXPERIENCE

LINKS Foundation

Senior Reasearcher, Advanced Computing & Applications

2021 - present

♥ Torino, IT

- HPC, Machine Learning and Big Data convergence.
- · Quantum computing.
- Funded research projects.

Noesis Solutions

Reasearch Engineer

2015 - 2021

Novara, IT

- Machine learning modelling methodologies for engineering applications.
- Development of numerical code and software stack.
- Supervisor of one internship.
- Re-designed company-wide source code management workflow.
- Technical contact for funded research projects.

Funded Research Projects

See paoloviviani.github.io/projects for details.

MACH		2015 - 2016
Fortissimo 2		2016 - 2018
CloudFlow	m FP7-I4MS project	2016 – 2017
BoSS		2018 - 2019
VaProFam		2019 - 2021
ACROSS	± H2020-EuroHPC	🛗 2021 – present

MAIN INTERESTS



High Performance Computing



Machine Learning



Quantum Computing



SKILLS

Parallel Computing GPU Computing Cloud technologies Machine Learning Funded research



Programming

C++ Python CUDA Fortran Git



Soft

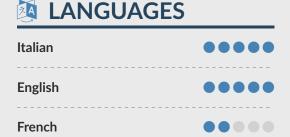
Presentations Communication of results Formalization of requirements Factorization of problems



Tools

- Keras
- MxNet
- Pandas
- BLAS/Lapack
- Openstack
- Apache Spark
- Docker
- Gitlab CI
- Linux
- IP Networking Latex
- Mathematica
- PBS/Slurm

CISCO CCNA course completed in 2008.





Publications

- 1. Reniers, V. et al. Authenticated and Auditable Data Sharing via Smart Contract in (Association for Computing Machinery, Brno, Czech Republic, 2020), 324-331.
- 2. Drocco, M., Viviani, P., Colonnelli, I., Aldinucci, M. & Grangetto, M. Accelerating spectral graph analysis through wavefronts of linear algebra operations in Proc. of 27th Euromicro Intl. Conference on Parallel Distributed and network-based Processing (PDP) (IEEE, Pavia, Italy, 2019), 9-16.
- Reniers, V. et al. Analysis of Architectural Variants for Auditable Blockchain-based Private Data Sharing in Proceedings of the 34th ACM/SIGAPP Symposium on Applied Computing (ACM, Limassol, Cyprus, 2019), 346-354.
- 4. Viviani, P. Deep Learning at Scale with Nearest Neighbours Communications PhD thesis (Computer Science Department, University of Torino, Sept. 2019).
- Viviani, P., Drocco, M., Baccega, D., Colonnelli, I. & Aldinucci, M. Deep Learning at Scale in Proc. of 27th Euromicro Intl. Conference on Parallel Distributed and network-based Processing (PDP) (IEEE, Pavia, Italy, 2019), 124-131.
- Aldinucci, M. et al. HPC4AI, an Al-on-demand federated platform endeavour in ACM Computing Frontiers (Ischia, Italy, May 2018).
- 7. Tordini, F., Aldinucci, M., Viviani, P., Merelli, I. & Liò, P. Scientific Workflows on Clouds with Heterogeneous and Preemptible Instances in Proc. of the Intl. Conference on Parallel Computing, ParCo 2017, 12-15 September 2017, Bologna, Italy (IOS Press, 2018).
- Viviani, P., Aldinucci, M., d'Ippolito, R., Lemeire, J. & Vucinic, D. A Flexible Numerical Framework for Engineering—A Response Surface Modelling Application in Improved Performance of Materials: Design and Experimental Approaches 93-106 (Springer International Publishing, Cham, 2018).
- 9. Viviani, P., Drocco, M. & Aldinucci, M. Pushing the boundaries of parallel Deep Learning - A practical approach. CoRR abs/1806.09528 (2018).
- Viviani, P., Drocco, M. & Aldinucci, M. Scaling Dense Linear Algebra on Multicore and Beyond: a Survey in Proc. of 26th Euromicro Intl. Conference on Parallel Distributed and network-based Processing (PDP) (IEEE, Cambridge, United Kingdom, 2018).
- Viviani, P., Torquati, M., Aldinucci, M. & d'Ippolito, R. Multiple back-end support for the Armadillo linear algebra interface in In proc. of the 32nd ACM Symposium on Applied Computing (SAC) (Marrakesh, Morocco, Apr. 2017), 1566-1573.
- 12. Viviani, P. Parallel Computing Techniques for High Energy Physics MA thesis (Physics Department, University of Torino, 2015).

Other

- Over 35 conference and journal papers reviewed
- Four PhD schools attended.
- Program Committee member, Euromicro International Conference on Paralle, Distributed, and Network-based Processing (PDP) for 2018 (also session chair), 2019 and 2020.
- Program Committee member, Parallel Numerical Methods and Libraries for Heterogeneous Multi/Manycores (PDP2018 and PDP2019).
- Program Committee member, Artifact Evaluation, Euro-Par 2018
- Program Committee member, 16th IEEE International Conference on Scalable Computing and Communications (ScalCom 2016).

*** FREE TIME**

Avid traveller and photographer. Former track & field athlete, now turned to playground basketball.

paoloviviani.github.io/portfolio

Photographer

OASIS Project

2013

♥ Kharga, Egypt

Archaeological expedition funded by Fondazione Collegio delle Università Milanesi and American University in Cairo.

Photographer

Collegio Universitario "R. Einaudi"

2012 - 2014 **♥** Torino, Italy

Exchange student

Tauranga Boy's College

Scuba Diver

PADI Advanced Open Water Diver

From 2004

Track and Field athlete

Javelin Throw - Regional and National competitions

1997 - 2012

Volunteer

IAAF Athletics World Championship

2009

9 Berlin, Germany

English Course

'General English Super Intensive' C1 level course at Alpha College of English

2012

♀ Dublin, Ireland

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