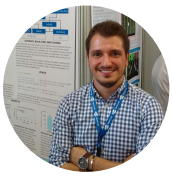
PAOLO VIVIANI

PhD – Research Engineer

Torino, ITALY @ paolo.vivi@gmail.com paoloviviani.github.io



EDUCATION

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.

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

EXPERIENCE

Noesis Solutions

Reasearch Engineer

April 2015 – present Novara, IT

- Development of **machine learning modelling methodologies for engineering applications**.
- Re-definition of the internal stack (C++, Python) for scientific computing, with focus on performance and maintainability.
- Cloud and container technologies exploitation.
- Supervisor of one internship.
- Re-designed company-wide source code management workflow.
- **Technical lead for the following research projects**. Non-technical tasks included presentations to European Commission reviewers and reporting activities.

Funded Research Projects

MACH – ITEA2 project

April 2015 – December 2016 itea3.org/project/mach.html

Fortissimo 2 – H2020-FoF project

February 2016 – October 2018 www.fortissimo-project.eu

CloudFlow – FP7-I4MS project

March 2016 – May 2017 www.eu-cloudflow.eu

Blockchain for online Service Security – IMEC-ICON Flemish project

March 2018 – November 2019

VaProFam – FlandersMake-ICON Flemish project

February 2019 – ongoing

DC-CDS – FlandersMake-ICON Flemish project

April 2019 – ongoing

MAIN INTERESTS

- High Performance Computing
- Machine Learning
- Containers and Cloud technologies

SKILLS

Parallel Computing	●●●●●
GPU Computing	●●●○○
Cloud technologies	●●●○○
Machine Learning	●●●●○

Programming

C++	●●●●●
Python	●●●●○
CUDA	●●○○○
Fortran	●●●○○
Git	●●●●●

Soft

Presentations	●●●●○
Communication of results	●●●●●
Formalization of requirements	●●●●○
Factorization of problems	●●●●●

Tools

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

CISCO CCNA course completed in 2008.

LANGUAGES

Italian	●●●●●
English	●●●●●
French	●●○○○

ACADEMIC

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.
3. 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).
5. 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.
6. Aldinucci, M. *et al. HPC4AI, an AI-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).
8. 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).
10. 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).
11. 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

- 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.

paoloph.myportfolio.com

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

2006 Tauranga, New Zealand

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 Berlin, Germany

English Course

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

2012 Dublin, Ireland