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
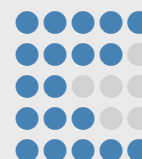- Machine Learning
- Containers and Cloud technologies

💼 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