PAOLO VIVIANI

PhD – Research Engineer

@ paolo.vivi@gmail.com 📞 +39 329 1865014 📍 **Torino, ITALY** 🔗 paoloviviani.github.io

🏛 EDUCATION

M.Sc. 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 – Permanent   📍 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

🔖 FIELDS OF INTEREST

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

💼 SKILLS

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

Programming

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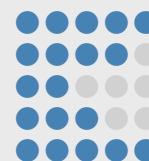
Soft

Presentations ●●●●○
Communication of results ●●●●●
Factorization of problems ●●●●●
Formalization of requirements ●●●●○
Time management ●●○○○
Workarounds ●●●●○
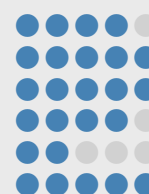
Tools

- Keras
- MxNet
- Pandas
- Apache Spark
- Openstack
- Docker
- Gitlab CI
- Linux
- IP Networking
- Latex
- Mathematica

CISCO CCNA course completed in 2008.

🗂 LANGUAGES

Italian ●●●●●

English ●●●●○

French ●●○○○

📖 ACADEMIC

Publications

1. Reniers, V., Gao, Y., *et al. Authenticated and Auditable Data Sharing via Smart Contract* in *Proceedings of the 35th ACM/SIGAPP Symposium on Applied Computing* (ACM, Brno, Czech Republic, 2020), 1–8.

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., Van Landuyt, D., *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., Drocco, M. & Aldinucci, M. Pushing the boundaries of parallel Deep Learning - A practical approach. *CoRR* **abs/1806.09528** (2018).

9. 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).

10. Viviani, P., Aldinucci, M., d'Ippolito, R., Lemeire, J. & Vucinic, D. in *Improved Performance of Materials: Design and Experimental Approaches* 93–106 (Springer International Publishing, Cham, 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

- Several 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)*

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✈ FREE TIME

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

📷 paoloph.myportfolio.com

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Photographer
OASIS Project
📅 2013   📍 Kharga, Egypt

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

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Photographer
Collegio Universitario "R. Einaudi"
📅 2012 – 2014   📍 Torino, Italy

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Exchange student
Tauranga Boy's College
📅 2006   📍 Tauranga, New Zealand

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Scuba Diver
PADI Advanced Open Water Diver
📅 From 2004

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Track and Field athlete
Javelin Throw – Regional and National competitions
📅 1997 – 2012

- -

Volunteer
IAAF Athletics World Championship
📅 2009   📍 Berlin, Germany

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English Course
'General English Super Intensive' C1 level course at Alpha College of English
📅 2012   📍 Dublin, Ireland

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Paolo Viviani, PhD