

PAOLO VIVIANI

PhD, Research Engineer

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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

Research Engineer

April 2015 - Permanent Novara, IT

- Development of machine learning modelling methodologies for engineering.
- Re-definition of the internal development and deployment stack (C++, Python) for scientific computations, with focus on performance and maintainability.
- Cloud and container technologies exploitation.
- Supervision of one internship.
- Re-designed internal source code management workflow.
- Technical contact for the following research projects. Including presentation to European Commission reviewers.

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 deployment

SKILLS

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

Programming

C++ ●●●●●
Python ●●●●●
CUDA ●●●●●
Git ●●●●●
Web development ●●●●●

Soft

Presentations ●●●●●
Communication of results ●●●●●
Factorization of problems ●●●●●
Time management ●●●●●
Workarounds ●●●●●

Tools

- Keras
- MxNet
- Pandas
- Apache Spark
- Openstack
- Docker
- Linux OS
- Networking
- Latex
- Mathematica

CISCO CCNA course completed in 2008.

LANGUAGES

Italian ●●●●●

English ●●●●●

French ●●●●●

Publications

- Reniers, Vincent, Yuan Gao, et al. "Authenticated and Auditable Data Sharing via Smart Contract". In: *Proceedings of the 35th ACM/SIGAPP Symposium on Applied Computing*. SAC '20. Brno, Czech Republic: ACM, 2020, pp. 1–8.
- Drocco, Maurizio, Paolo Viviani, Iacopo Colonnelli, Marco Aldinucci, and Marco Grangetto. "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)*. Pavia, Italy: IEEE, 2019, pp. 9–16.
- Reniers, Vincent, Dimitri Van Landuyt, et al. "Analysis of Architectural Variants for Auditable Blockchain-based Private Data Sharing". In: *Proceedings of the 34th ACM/SIGAPP Symposium on Applied Computing*. SAC '19. Limassol, Cyprus: ACM, 2019, pp. 346–354.
- Viviani, Paolo. "Deep Learning at Scale with Nearest Neighbours Communications". PhD thesis. Computer Science Department, University of Torino, Sept. 2019.
- Viviani, Paolo, Maurizio Drocco, Daniele Baccega, Iacopo Colonnelli, and Marco Aldinucci. "Deep Learning at Scale". In: *Proc. of 27th Euromicro Intl. Conference on Parallel Distributed and network-based Processing (PDP)*. Pavia, Italy: IEEE, 2019, pp. 124–131.
- Aldinucci, Marco et al. "HPC4AI, an AI-on-demand federated platform endeavour". In: *ACM Computing Frontiers*. Ischia, Italy, May 2018.
- Tordini, Fabio, Marco Aldinucci, Paolo Viviani, Ivan Merelli, and Pietro Liò. "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*. Advances in Parallel Computing. IOS Press, 2018.
- Viviani, P., M. Aldinucci, R. d'Ippolito, J. Lemeire, and D. Vucinic. "A Flexible Numerical Framework for Engineering—A Response Surface Modelling Application". In: *Improved Performance of Materials: Design and Experimental Approaches*. Cham: Springer International Publishing, 2018, pp. 93–106.
- Viviani, Paolo, Maurizio Drocco, and Marco Aldinucci. "Pushing the boundaries of parallel Deep Learning - A practical approach". In: *CoRR abs/1806.09528* (2018).
- – "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)*. Cambridge, United Kingdom: IEEE, 2018.
- Viviani, Paolo, Massimo Torquati, Marco Aldinucci, and Roberto d'Ippolito. "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, pp. 1566–1573.
- Viviani, Paolo. "Parallel Computing Techniques for High Energy Physics". MA thesis. Physics Department, University of Torino, 2015.

Other



- Program Committee member, *Euromicro International Conference on Parallel, 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 (Special Session of PDP2018 and PDP2019)*
- Program Committee member, *Artifact Evaluation, Euro-Par 2018 Conference*
- Program Committee member, *16th IEEE International Conference on Scalable Computing and Communications (ScalCom 2016)*

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

 paoloph.carbonmade.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

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