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

Reasearch 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	●●●●○
MPI/OpenMP and other tools	●●●●○
CUDA	●●○○○
Git	●●●●○

Tools

MxNet	●●●●●
Keras	●●●○○
Apache Spark	●○○○○
Python Deployment	●●●●○
Numerical Libraries	●●●●○
Openstack	●●●○○
Docker	●●●●○

CISCO CCNA course completed in 2008.

Soft

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

LANGUAGES

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

ACADEMIC

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 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 (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)*

FREE TIME

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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