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 applications.
- Re-definition of the internal development and deployment 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 contact for the following research projects. Including presentation 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 deployment

💼 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

- 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, 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., Marco Aldinucci, Roberto d'Ippolito, Jan Lemeire, and Dean 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, 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)*

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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

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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