

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

LINKS Foundation
Senior Reasearcher
2021 – present Torino, IT
• HPC and big data analytics.
• Quantum computing.
• Funded research projects.

Noesis Solutions
Reasearch Engineer
2015 – 2021 Novara, IT
• Machine learning modelling methodologies for engineering applications.
• Supervisor of one internship.
• Re-designed company-wide source code management workflow.
• Technical contact for funded research projects.

Funded Research Projects

- MACH**
2015 – 2016
ITEA2
itea3.org/project/mach.html
- Fortissimo 2**
2016 – 2018
H2020-FoF project
www.fortissimo-project.eu
- CloudFlow**
2016 – 2017
FP7-I4MS project
www.eu-cloudflow.eu
- BoSS**
2018 – 2019
IMEC-ICON
- VaProFam**
2019 – 2021
FlandersMake-ICON
- DC-CDS**
2019 – 2021
FlandersMake-ICON

MAIN INTERESTS

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

SKILLS

- Parallel Computing
- GPU Computing
- Cloud technologies
- Machine Learning
- Funded research

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

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 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 (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)*

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

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accordance with Italian Privacy Protection Law
(30/06/2003, n.196/03), and GDPR
(UE 2016/679)