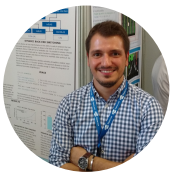
PAOLO VIVIANI

PhD – Senior Reasearcher

Torino, ITALY paolo.vivi@gmail.com paoloviviani.github.io



EDUCATION

Ph.D. in Computer Science

University of Torino

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

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.

EXPERIENCE

LINKS Foundation

Senior Reasearcher

2021 – present Torino, IT

- HPC, Machine Learning and Big Data convergence.
- Quantum computing.
- Funded research projects.

Noesis Solutions

Reasearch Engineer

2015 – 2021 Novara, IT

- **Machine learning modelling methodologies for engineering applications**.
- Development of numerical code and software stack.
- Supervisor of one internship.
- Re-designed company-wide source code management workflow.
- Technical contact for funded research projects.

Funded Research Projects

See **paoloviviani.github.io/projects** for full list and details.

B-CRATOS	H2020-FET Open	2021 – ongoing
ACROSS	H2020-EuroHPC	2021 – ongoing
VaProFam	FlandersMake-ICON	2019 – 2021
BoSS	IMEC-ICON	2018 – 2019
Fortissimo 2	H2020-FoF project	2016 – 2018
CloudFlow	FP7-I4MS project	2016 – 2017
MACH	ITEA2	2015 – 2016

MAIN INTERESTS

- **High Performance Computing**
- **Machine Learning**
- **Quantum Computing**

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
- Qiskit
- Gitlab CI
- Linux
- IP Networking
- Latex
- Mathematica

CISCO CCNA course completed in 2008.

LANGUAGES

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

ACADEMIC

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

- Over 35 conference and journal papers reviewed
- Four 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).*

FREE TIME

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

paoloviviani.github.io/portfolio

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