Dr. Andrea **Scaglioni**

Italian nationality, born 1994
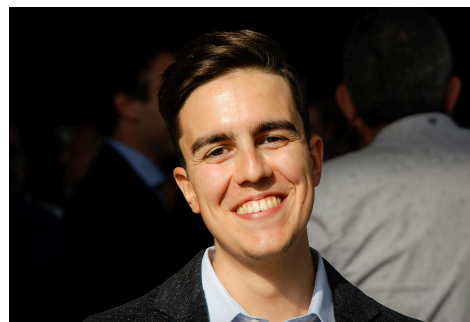Based in Vienna (Austria)
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SUMMARY

- Ph.D. in Computational Mathematics: Optimization, uncertainty quantification, numerical differential equations. International education and internship experience.
- Implemented/contributed to 5+ scientific programming projects in Python, Matlab, (C++).
- Wrote two highly innovative, long-form scientific papers for high-impact journals.
- Presented at 11+ conferences, taught 7 courses (tutoring, wrote examples; most in German).

PROFESSIONAL EXPERIENCE

Universität Wien   Vienna, AT

Postdoc Researcher in Computational Mathematics   Oct 2024 - Present

- Deep neural network approximation and reduced order modelling (reduced basis) of nonlinear parametric PDEs (in progress). Joint work with other postdoc researcher.

TU Wien   Vienna, AT

University Assistant in Computational Mathematics   Nov 2019 - Oct 2024

- Researched approximation of challenging, nonlinear stochastic PDEs with Sparse Grid-Finite Element algorithms. Reported to professor, 3 international collaborators.
- Designed, implemented *SGMthods*: High-dimensional Sparse Grid Interpolation (Python, see GitHub). Tested on nonlinear parametric PDEs with 100+ scalar unbounded parameters.
- Designed, implemented (Matlab) *adaptive* Sparse Grid-Finite Element algorithm. Reduces cost by ~100x compared to uniform meshes. Fully automatic, no hyperparameter selection.
- Secured €3500 funding (*Christiane Hörbiger Preis*) used for research trip to Australia.
- Organized, coordinated events as 1 of 4 student speakers of *Vienna School of Mathematics*.

Fluxim AG   Winterthur, CH

Algorithms & Programming Intern   Feb - Aug 2018

Fluxim AG develops world-renowned simulation software and measurement instruments for semiconductor devices (solar cells, OLEDs). Customers: Stanford University, ETH Zurich, Csiro, …

- Reported to technical consultant to research and implement global optimization algorithms in company's software. Independent interaction with technical staff to find relevant test cases.
- Researched and tested (Python) ~10 algorithms on challenging parametric solar cell setups.
- Collected best 3 algorithms in C++ library for integration in company's software (C++).
- Reduced simulation time by factor ~10, increased possible accuracy.

EDUCATION

TU Wien   Vienna, AT

Ph.D. Computational Mathematics   Nov. 2019 - Oct. 2024

Grade: *Sehr Gut mit Auszeichnung.* See "University Assistant" position above.

EPFL   Lausanne, CH

M.Sc. Computational Science and Engineering GPA 5.37/6.   2016 - 2019

EPFL ranks among the 15 best universities worldwide in QS, THE, and ARWU rankings. The CSE program is restricted to ~30 students per year and admission is highly competitive.

- Designed and implemented (extended Matlab *GeoPDEs* library) *Trimmed Isogeometric Analysis of Stokes problem* in master thesis, post-master internship (Sept. 2018 - Aug.2019).
- Researched cardiovascular modelling (C++ finite elements, *Paraview* data visualization); stochastic simulation (C++ finite elements, original theoretical analysis) as semester projects.
- Assisted teaching (*Numerical Optimization*), research (cardiovascular modelling).

Università degli Studi di Trento (IT) *B.Sc. Mathematics.* 110/110 *cum Laude*   2013 - 2016

The undergraduate sciences programs rank 1. in the CENSIS national universities ranking 2024.

TECHNICAL SKILLS SUMMARY

Programming	Python, Matlab (*advanced*), *C, C++* (*intermediate*)
Tools	Git, Sphinx, Pytest, VS Code (*frequent use*)
Technologies	OpenMP, MPI, CUDA (*basic*)

LANGUAGE SKILLS

English *advanced*   German *intermediate*   Italian *mother tongue*   French *basic*

More information on https://andreascaglioni.net/