Dr. Andrea **Scaglioni**

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Looking for **junior**, **full-time** position in **industrial R&D** | **technology** | **banking** | **forecasting.**

COMPUTATIONAL RESEARCH ENGINEER

- **Computational Engineer** with **Technical Mathematics** Ph.D. and 5+ years experience in **high-performance computing**, **numerical simulation**, **physical modelling**, **optimization**.
- Developed 5+ **Python**, **Matlab**, **C++** software projects on **physical simulation** and **data-driven approximation** with emphasis on code **readability**, **testing**, **documentation**.
- Developed **reliable** and **efficient computational models** applicable to a range of fields: Fluid dynamics, magnetic materials, risk modelling, deviative pricing, weather forecasting, ….
- Quick learner, proven **problem-solving** skills. Engaged **team-player**. Innovation enthusiast.

PROGRAMMING

Programming	**Python** (*advanced*), ***C, C++***, **Matlab,** Bash scripting.
Tools	**Git, Paraview**, Sphinx, Pytest, NumPy, SciPy, Matplotlib…
Technologies	**Linux** (*main work OS),* **HPC** (OpenMP, MPI, CUDA, *basic*).

PROFESSIONAL EXPERIENCE

Universität Wien Vienna, AT
Postdoc Researcher Computational Mathematics Oct 2024–Present

- Implementing a **real-time simulation** algorithms for complex **stochastic physical phenomena** using **Python,** reduced basis, finite elements (ongoing collaborative project).
- Exploring use of **Deep Neural Network** (PINNs, Operator Learning) for **statistical modelling**.

TU Wien Vienna, AT
University Assistant Computational Mathematics Nov 2019–Oct 2024

- Designed hybrid **data-driven** & physical **simulation algorithms** for **forecasting** of (nonlinear) **stochastic** physical phenomena (e.g. micromagnetic dynamics, linear elasticity).
- Developed *SGMethods*: **Python** library for efficient interpolation of high-dimensional functions. Successfully applied to **parametric differential equations** with 100+ unbounded parameters.
- Designed a **Matlab** *hyperparameter-free* method for **random differential equations**, achieving **~100x compute time reduction** compared to benchmark.

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, …

- Tested 10+ **local & global optimization** algorithms (**Python**) on innovative solar cell setups.
- Integrated in **C++ company software**. 10x shorter compute time, increased possible accuracy.

EDUCATION

TU Wien Vienna, AT
Ph.D. Computational Mathematics. *Sehr Gut mit Auszeichnung.* Nov 2019–Oct 2024
See *University Assistant*.

EPFL Lausanne, CH
M.Sc. Computational Science and Engineering. *GPA 5.37/6*. 2016–2019
Maths, engineering, computing program in a top-15 (QS, THE, ARWU rankings) unis worldwide.

- Designed **fluids simulation** algorithms (**Matlab**) directly on CAD geometries (master project).
- Simulated blood flow with **parallel** (**C++**, **MPI**); data analysis and visualization (Paraview).
- Devised 3+ linear systems **CUDA parallelization strategies**, tested on **GPU** (course project).

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

ACHIEVEMENTS

- Wrote **2** highly innovative, long-form **scientific papers** for high-impact journals.
- Presented at **11+ conferences**, taught 7+ courses (tutoring, wrote examples; most German).
- Secured **€3500 funding** (*Christiane Hörbiger Preis*) for research stay in Australia.
- Coordinated, organized students' events as Student Speaker of *Vienna School of Mathematics.*

LANGUAGES

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

More information on https://andreascaglioni.net/