

Simon Valentin Mathis

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born 31 August 1995 | Austrian | [Website](#) | [GitHub](#) | [LinkedIn](#) | 0044 7521 184 019

speaks German (native), English (C2), French (B2), Japanese (A2)

Education

2021/10 – now	PhD Computer Science University of Cambridge <ul style="list-style-type: none">• PhD in the Computer Lab and AI4ER CDT with Prof. Pietro Lió.• Researching on artificial intelligence for molecular and systems biology to assess environmental risks, protein design for environmental applications.
2020 – 2021	MRes Environmental Data Science [distinction] University of Cambridge <ul style="list-style-type: none">• AI4ER CDT Program. Researched on machine learning for satellite remote sensing (multispectral, LiDAR), computational ecology and carbon sequestration.• Project: GeoGraph: <i>geo-spatially referenced graphs for computational ecology</i>.• Thesis: <i>Continent-scale analysis of canopy height recovery and carbon sequestration rates in the Amazon rainforest</i>.
2017 – 2019	MSc Physics [distinction] ETH Zurich <ul style="list-style-type: none">• Focussed on computational and theoretical quantum physics.• Thesis: <i>Digital Quantum Simulation of U(1) Lattice Gauge Theories</i>• Willi Studer Prize for graduating top of my year (134 students).• ETH Medal for an outstanding Master Thesis.• Co-founder of the Analytics Club at ETH and the Hack4Good initiative.• 6 month exchange at the University of Tokyo, Japan (GPA: A).
2014 – 2017	BSc Physics [distinction] ETH Zurich <ul style="list-style-type: none">• Thesis: <i>Microwave Waveguides with Engineered Dispersion based on Arrays of Lumped-Element Resonators</i> in the Quantum Device Lab• Pólya Award for graduating top of my year (100+ students).

Research Experience

2019/04 – 2019/10	Visiting Researcher Quantum Technologies Group IBM Research Zurich <ul style="list-style-type: none">• Joint Master thesis between IBM Zurich and ETH Zurich• Project: <i>Simulation of U(1) Lattice Gauge Theories on Digital Quantum Computers</i> [Phys. Rev. D 102, 094501]
2018/10 – 2019/05	Student Researcher [part-time] QIT Group ETH Zurich <ul style="list-style-type: none">• Project: <i>Quantum Simulation of Thought Experiments</i> in the quantum information theory group of Prof. Renato Renner. [github]
2016/08 – 2016/09	Undergraduate Research Fellow Walsworth Group Harvard University <ul style="list-style-type: none">• Project: <i>NV diamond sensing of neural action potentials</i> in the Walsworth Group

Work Experience

2020/09 – 2021/08	Consultant [part-time, online] Visium SA <ul style="list-style-type: none">• Led the sustainability strategy and pro bono machine learning projects.
2020/02 – 2020/08	Machine Learning Engineer - Intern Visium SA <ul style="list-style-type: none">• Worked on a computer vision project in Histopathology for a large biopharma client. The work of our team (3 people) landed an over CHF 100k follow-up contract.• Leading the effort to develop a scraping, aligning and curation pipeline to generate the largest Swiss legal language corpus for neural machine translation for a client.
2019/09 – 2019/12	Visiting Associate Boston Consulting Group in Zurich <ul style="list-style-type: none">• Project in biopharma industry, worked on supply chain and launch readiness for a Car-T cell cancer therapy. Independently led a workshop for senior executives.
2017/02 – 2017/06	Teaching assistant at the Physics department [part-time] ETH Zurich <ul style="list-style-type: none">• Taught a class of 25 students in Philosophy of Physics II.

Service

2020 – now	Co-founder of the Cambridge Aikido Society , Member of the Societies Syndicate Committee, ED&I representative for the AI4ER CDT program.
2020	Mentor and Coach for Hack4Good .
2018 – 2019	Co-founder and board member of the Analytics Club at ETH . Scaled the club from 0 to 200 members, organised machine learning workshops with Google, BCG Gamma, Siemens, etc and launched the Hack4Good program at ETH Zurich.
2012 – 2018	Various volunteering, workshop facilitation and pro bono consulting activities at the Graduate Consulting Club , the Swiss NPO euforia , the Austrian regional government of Vorarlberg and the <i>Friends of Change</i> initiative that I co-founded in Vorarlberg, Austria.

Fellowships and Awards

2021	Jennings Prize from Wolfson College for graduating with distinction from my MRes
	First place at the Optiver algorithmic trading challenge at Hex Cambridge [github]
2020	Vice Chancellor's Award by the Cambridge Trust for four years funding for MRes and PhD studies at the University of Cambridge, UK
	Willi Studer Prize for graduating as top of my year (134 students) in the Physics Masters programme, ETH Zurich
	ETH Medal for an outstanding Master thesis, ETH Zurich
2019	Lindau Nobel Laureate scholarship , officially nominated by Nobel Laureate Kurth Wüthrich as one of three ETH students for the Lindau Nobel Laureate Meetings 2019
2018	Pólya Award of the Mathematics and Physics Department at ETH Zurich for graduating as the top student of my year (100+ students)
	IDEA League Challenge Program , selected as one of five ETH students
2017	Excellence Scholarship and Opportunity Program in Physics (ETH Foundation)
	JASSO Scholarship (Japanese government, The University of Tokyo)
2016	Fellow of the Swiss Studyfoundation (Schweizerische Studienstiftung)
2014	Scholarship for the Junior Alpbach at the European Forum Alpbach , Austria
2013	Winner of regional and 8th place at national Philosophy Olympics , Austria

Publications

2021	Gauge-invariant quantum circuits for $U(1)$ and Yang-Mills lattice gauge theories. Mazzola, G., Mathis, S. V. , Mazzola, G., & Tavernelli, I. Phys. Rev. Research.
2020	Toward scalable simulations of lattice gauge theories on quantum computers. Mathis, S. V. , Mazzola, G., & Tavernelli, I. Phys. Rev. D.

Scientific Computing and Programming

python	<i>Highly competent</i> : scientific computing, data analysis, machine learning, deep learning, developing web APIs, scraping
R	<i>Competent</i> : scientific computing, data analysis
C++	<i>Competent</i> : first language I learned, scientific and general computing
System	<i>Competent</i> : GNU/Linux, remote development, Docker, working with HPC clusters
Web	<i>Competent</i> : javascript and HTML/CSS

Other

- Passionate about Aikido (Japanese martial art).
- Avid skier and hobby-climber.
- Personal interest in the philosophy of science, science communication, and [effective altruism](#).

References

- *PhD Supervisor*: [Prof. Pietro Lió](#)
- *MRes Supervisor*: [Prof. Keshav Srinivasnan](#)
- *MSc Supervisor*: [Dr. Ivano Tavernelli](#)
- *CTO Visium*: [Dr. Matteo Togninalli](#)
- *Project leader at BCG*: [Philipp Pauli](#)