

Employment

- 2025 - present **Professor for High-Performance Computing and Artificial Intelligence**
University of Applied Sciences Northwestern Switzerland FHNW
Institute for Data Science, permanent position
- 2025 - 2027 **Humboldt Experienced Research Fellow**, topic: “AI for Cosmology”
08-10/25 Ludwig Maximilians University, Munich, Germany,
06-08/27 Max Planck Institute for Astrophysics, Garching, Germany
- 2021 - 2025 Senior Data Scientist, Swiss Data Science Center
Collaborations for adaptation of data science in physics
- 2018 - 2024 Senior Scientist, Institute for Particle Physics and Astrophysics, ETH Zurich
Idea originator and lead advisor for 7 PhD student papers and 8 MSc student papers
- 2014 - 2018 Post-doctoral research associate, Institute for Astronomy, ETH Zurich
First author of 3 papers, advisor: Prof Alexandre Refregier

Education

- 2010 - 2014 **PhD in Physics and Astronomy**, University College London, UK
Advisors: Prof Sarah Bridle, Prof John Shawe - Taylor
Thesis topic: *Statistical problems in Weak Gravitational Lensing*
- 2009 - 2010 **MSc Machine Learning**, First Class, University College London, UK
Advisors: Prof John Shawe-Taylor, Prof Ofer Lahav
Thesis topic: *Kernel methods for galaxy morphological classification*

Awards

- 2026 - 2027 Swiss AI computing allocation: *Apertus Quantization*
Principal Investigator, 50k GPU-node hours on Alps GH200, ≈30k CHF
Awarded by Swiss Supercomputing Center CSCS
- 2024 - 2025 NERSC Generative AI for Science Project: *DES+DESC Generative AI for Cosmology*
Principal Investigator, 7000 A100 GPU Node Hours, ≈40k USD
Awarded by the National Energy Research Scientific Computing Center, USA
- 2023 - 2025 NERSC Exascale Science Applications Program, Project: *DESLearning*
Principal Investigator, 0.5 NERSC FTE algorithmic and technical support
- 2020 - 2021 Computational production project: *Measuring Dark Energy with Deep Learning*
Principal Investigator, value 750'000 GPU-node hours, ≈500 kEUR
Awarded by the Swiss National Supercomputing Center, www.cosmogrid.ai
- 2017 - 2019 Grant: *Deep Learning for Observational Cosmology*
Principal Investigator, hired staff: N. Perraudin (postdoc), J. Fluri (PhD)
Awarded by Swiss Data Science Center, ≈EURk CHF
- 2019 Workshop: *Artificial Intelligence Methods in Cosmology*, June 9-12
Main applicant and lead organizer, ≈5k EUR
Awarded by ETHZ Congressi Stefano Francini

Leadership and service

- 2025 - present **Head of the FHNW High-Performance Computing Lab**
- Project acquisition in collaboration with Swiss industry and academia
 - Infrastructure strategy planning for FHNW
 - Teaching and student supervision on HPC and AI topics
- 2024 - present **Member of the Euclid collaboration**
- Deputy lead of the *Cosmological Simulations Science Working Group*
 - Co-lead of the Work Package *Field-level Inference and Forward Modelling*
 - Secretary of the Standard Project *Robust Cosmology from Multiprobe SBI ... (448)*
- 2013 - present **Builder of the Dark Energy Survey**
- Permanent *Builder* status awarded after 2 FTE of DES infrastructure work
 - Simulations Working Group Coordinator (2022-present)
 - Member of the Science Committee (2022-present)
 - In-person participation in 15 DES collaboration meetings
- 2022 - present **Supervision and mentoring**
- Idea originator and lead advisor for 4 post-doc, 8 PhD, and 13 MSc projects
 - 8/13 MSc projects resulted in articles published in peer-reviewed journals
- 2018 - present **Service in astrophysics and computer science**
- Reviewer for the *Application Track* at *Supercomputing* 2024, 2025
 - Paper reviewer for Nature Astronomy, PNAS, Physical Review, JCAP, MNRAS
 - External examiner for PhD thesis Justine Zeghal (APC, Paris, FR)
 - Proposal reviewer for Swiss Data Science Center calls for collaborative projects
 - Proposal reviewer for UKRI Future leaders programme
- 2018 - 2019 **Lead organizer of workshop *Artificial Intelligence Methods in Cosmology***
- Monte Verita, Ascona, June 2019, 46 participants, 6 invited speakers
 - Lead grant writer, speaker invitations, program development, logistics

Recent presentations (selected)

- 2025/12 *Geneva Observatory Seminar*, Geneva, CH, **invited talk**
- 2025/10 *AI+Astronomy Workshop*, Zhejiang Lab, Hangzhou, CN, **invited talk**
- 2025/09 *Putting the Cosmic LSS on the Map*, ESI Vienna, AT, invitation-only workshop talk
- 2025/05 *Innovatalk*, 2025 Vinfuture Webinar Series, Vietnam (remote), invited talk
- 2024/10 *X Meeting on Fundamental Cosmology*, Sevilla, ES, **invited review talk**
- 2023/11 *Debating the Potential of ML in Astro. Surveys*, IAP Paris, FR, **invited review talk**
- 2023/11 *Mathematics and Informatics Colloquium*, Uni Basel, CH, **invited seminar**
- 2023/06 *Emerging topics in applications of Optimal Transport*, ITS, ETH Zurich, CH
- 2023/05 *ML X Astrophysics Symposium*, Flatiron Institute, New York, USA, **invited talk**
- 2022/07 *Key Challenges in Galaxy and CMB lensing*, Cambridge, UK, **invited guest talk**
- 2022/06 *Bayesian Deep Learning in Cosmology*, Paris, FR, **invited keynote talk** 
- 2022/06 *Space Science Data Center Seminar*, Rome, IT, **invited seminar talk**
- 2022/04 *Berkeley ML and Science Forum*, Berkeley, USA, **invited seminar talk**