Niklas Viebig

Email | LinkedIn | Github

MSc Physics Student | Computational Astrophysics & Climate Science | Machine Learning for Physical Modeling

Master's student in astrophysics and climate science at ETH Zurich. Specializing in planetary habitability and climate systems with a focus on scientific computing and machine learning for physical modeling.

EDUCATION

University of Oxford — ***United Kingdom***

Incoming Visiting Research Student (Master's Thesis) — *Sep 2025 – Mar 2026*

ETH Zürich — ***Switzerland***

Master of Science - MSc, Physics — *Sep 2024 – Mar 2026*

Bachelor of Science - BSc, Physics — *Sep 2020 – Mar 2024*

RESEARCH & PROJECTS (Selected)

Winner, START Hack 2025 - UNCCD & G20 Global Land Initiative Track — **St. Gallen, Switzerland**

Interactive Dashboard for Sustainable Land Management in the Sahel, Africa — *Mar 2025*

- Developed an interactive geospatial dashboard visualizing 20 years of land cover, vegetation productivity, rainfall, and population density trends in the Sahel region to support sustainable land management and conflict mitigation
- Invited to attend a UNCCD & G20 Global Land Initiative conference

ETH Zürich - Bayesian Statistical Methods and Data Analysis (HS2024 Course Project) — **Zürich, Switzerland**

Bayesian Spatio-Temporal Modeling of Amazonian Wildfire Activity — *Sep 2024 – Feb 2025*

- Applied Bayesian hierarchical modeling to predict wildfire activity across 558 municipalities in the Amazon region over 12 years, integrating meteorological and land-use transition data, analyzing key environmental drivers of wildfire dynamics.

ETH Zürich, Exoplanet and Habitability Group — **Zürich, Switzerland**

Experimental Testing of a Grating Nuller — *Sep 2024 – Feb 2025*

- Analyzed and experimentally designed a grating nuller for the LIFE mission's nulling interferometer concept.
- Independently developed a Fourier optics model to assess achromatic nulling performance and throughput limitations; proposed and calibrated an experimental setup to evaluate feasibility for exoplanet detection.

ETH Zürich, Exoplanet and Habitability Group — **Zürich, Switzerland**

Simulating Coronagraphic Exoplanet Detection — *Feb 2022 - Dec 2022*

- Built a Python-based coronagraphic simulation tool to improve JWST's exoplanet detection, increasing image processing speed by 50%, reducing computational processing time expediting data analysis for astronomers.

WORK EXPERIENCE

Strategy& - Part of the PwC Network — **Berlin, Germany**

Research Analyst Intern — *Mar 2024 - Aug 2024*

- Conducted market and financial analysis using Refinitiv, Capital IQ, PitchBook, Orbis, Statista, and EMIS, identifying trends across 7 industries.
- Developed data-driven research materials, including competitor benchmarking, market reports, and pricing analyses, supporting strategic recommendations.
- Led innovation through AI-driven automation for the research team, reducing research time by 40% through automated data extraction, AI-enhanced market analysis, and report generation.
- Designed and launched Strategy& Share, an internal knowledge management hub, centralizing consulting best practices and research resources, improving knowledge accessibility.

Linklaters **Frankfurt, Germany**

Student Intern *Apr 2018 - May 2018*

- Researched and analyzed international tax policies and corporate M&A regulations, providing insights to senior legal teams.
- Assisted in high-profile cross-border transactions, contributing to compliance assessments and tax advisory reports.

SCHOLARSHIPS

Swiss-European Mobility Programme (SEMP) Scholarship

ETH Zurich & Swiss Confederation *2025 – 2026*

- Awarded CHF 2,640 mobility grant for a 6-month Master's thesis at the University of Oxford focused on machine learning in climate modeling (SpeedyWeather.jl)

Swiss Friends of Oxford University (SFOU) Scholarship

Scholarship Committee of the Swiss Friends of Oxford University *2025*

- Awarded CHF 1,350 in recognition of academic merit and research purpose to support Master's thesis work at the University of Oxford.

SKILLS & INTERESTS

Industry Tools : Microsoft Office (Excel, Word, PowerPoint), LaTeX

Technical Skills : Python (NumPy, SciPy, TensorFlow, Matplotlib, pandas, scikit-learn), C++, Julia

Interests: Climate Modeling, Machine Learning in Scientific Computing, Numerical Simulations

Languages: English (Fluent), German (Native)