

I am a physical scientist and research engineer specialized on all things scientific computing, with industry experience in scientific machine learning / AI, data engineering, and engineering leadership in a research setting.

Recent Work Experience

Apr 2022 –
present

Staff Research Engineer — R&D lead @ Pasteur Labs

My team and I build efficient, scalable software for scientific advances at the interface between physical simulators and modern machine learning. As R&D lead, I guide the team in technical decision making, execution, and research-to-product transitions.

Sep 2017 –

Software development specialist @ DHI GRAS

Dec 2018

At DHI GRAS, I built robust data pipelines, powerful statistical tools, and optimized remote sensing workflows.

Major Software Projects

Veros — A high-performance ocean model in pure Python

I am the main developer and maintainer of Veros, a full-fledged primitive equation ocean model capable of accurate, realistic simulations of the global ocean. Veros leverages the JAX library for state-of-the-art performance on CPU and GPU clusters. [See on GitHub](#)

Terracotta — A light-weight geospatial raster tile server

Terracotta is a minimal, east-to-use, cloud-ready raster tile server, leveraging the cloud-optimized GeoTiff format and a modern geospatial Python stack. [See on GitHub](#)

Programming Skills

ML frameworks

I am intimately familiar with modern machine learning and data workflows, and am a power user of the JAX library ecosystem. Also scikit-learn, Tensorflow / Keras, and PyMC3.

Python

I have both deep and broad experience up and down the modern Python stack, especially concerning **data analysis, machine learning, visualization, and scientific computing**, but also general SWE and application development. Be it NumPy, JAX, Numba, Cython, pydantic, streamlit, xarray, pandas, flask, FastAPI, flake8, ruff, uv, matplotlib, pyvista — I have used Python in all its facets.

Education

» PhD in Physical Oceanography @

University of Copenhagen (2022) — In my project, I used machine learning on large amounts of real-world data to infer the physical mechanisms behind extreme ocean waves (rogue waves).

» BSc and MSc in Physics @ Heidelberg

University (2016) — GPA of 1.3 and 1.2, respectively (“very good”). Exchange year at KTH Stockholm in 2014. Specialization on computational physics.

Other Skills & Interests

» Strong **mathematical and analytical skills**, and an affection for data.

» Good theoretical foundation of **applied mathematics and scientific computing** (including ODE / PDE solvers, numerical optimization, signal processing, and automatic differentiation).

» A knack for probabilistic reasoning and **Bayesian data analysis**. I like to make my assumptions and uncertainties explicit.

» I am passionate about **open-source software development**, and have contributed code to several large projects on GitHub (and started my own).

» A special interest in **effective communication** through writing, oral presentations, and data visualization. I take the quality of my publications seriously, and love to present my work.

» **Languages**: German (native), English (fully proficient), Swedish (proficient), Danish (elementary)