

I am a scientist and software engineer specialized on all things scientific computing, with industry experience in data processing and artificial intelligence (formerly known as machine learning). My main research interest is “human learning”: How can we build machines that teach us something about our physical world?

Recent Work Experience

Apr 2022 –
present

Senior Research Engineer — R&D lead @ Pasteur Labs

I lead a team of highly skilled individuals building cutting-edge software for scientific advances at the interface between physical simulators and modern AI.

Sep 2017 –
Dec 2018

Software development specialist @ DHI GRAS

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. It 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 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 familiar with modern machine learning workflows and have deep knowledge of JAX, scikit-learn, Tensorflow / Keras, and PyMC.

Python

I have both deep and broad experience within the Python ecosystem, especially concerning (but not limited to) [data analysis, machine learning, visualization, and scientific computing](#). I love working with the modern scientific Python stack and am well-versed with libraries like JAX, PyTorch, matplotlib, xarray, Numba, and Pandas. I have probably used most of the libraries in the PyData ecosystem at some point.

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 by which physical mechanisms extreme ocean waves (rogue waves) are generated.

» 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 big projects on GitHub.

» 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)