

I am a research engineer and scientist specialized on all things scientific computing, with industry experience in data processing and 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 @ Pasteur Labs

I build efficient, scalable software for scientific advances at the interface between physical simulators and modern machine learning.

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 good knowledge of scikit-learn, Tensorflow / Keras, PyMC, and JAX.

### 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 NumPy, SciPy, matplotlib, xarray, JAX, Numba, and Pandas.

## 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)