A person with a beard

Description automatically generated with medium confidence Rik Voorhaar

Languages

Bilingual English

Dutch

Intermediate French

Elementary Japanese

Russian

Skills

Algorithms

Data science

Machine learning

Mathematics

Optimization

Research

Science communication

Software development

Statistics

Teaching

Programming Languages

Advanced Python

Intermediate LaTeX

Mathematica

Beginner C / C++

R

Tools

General Bash

Docker

Git

Linux

Windows

Libraries CVXPY

Cython

JAX

Networkx

NumPy

Pandas

PyTorch

Sagemath

SciPy

Tensorflow

Icon

Description automatically generated University of Geneva

Icon

Description automatically generated +31 6 3986 5964

Icon

Description automatically generated [Rik.Voorhaar@unige.ch](mailto:Rik.Voorhaar@unige.ch)

Icon

Description automatically generated [rikvoorhaar.com](https://rikvoorhaar.com)

[linkedin.com/in/rik-voorhaar](https://linkedin.com/in/rik-voorhaar)



Icon

Description automatically generated [github.com/RikVoorhaar](https://github.com/RikVoorhaar)

Resume

Personal statement

Mathematics PhD student specialized in researching numerical and machinelearning algorithms. Several years experience in Python software development. Excellent skills in data science and science communication.

Experience

2018—2022 *(expected)* **Doctoral Candidate in Mathematics** *University of Geneva*

*Research interests*: Numerical linear algebra, tensors, optimization, machine learning.

Started PhD in pure mathematics, switched after two years to applied mathematics. Uses advanced numerical methods to develop novel machine learning techniques. Spend a large fraction of research time developing open-source software, available on [my GitHub repository](https://github.com/RikVoorhaar). Developed 3 fully-featured numerical Python software libraries, leading to 3 publications with 4th in progress. Contributed code to 2 scientific open-source projects.

2021—present **Senior scientific editor** [*The Science Breaker*](https://thesciencebreaker.org/)

Edited 8 articles for open-access science communication journal. Editing involves collaborative process to make summaries of published scientific research suitable for a lay audience.

2020—present Data science blog [*rikvoorhaar.com*](https://www.rikvoorhaar.com/)

Wrote blog posts on advanced topics related to data science and numerical mathematics. Wrote articles both for lay audience and for a wide scientific audience. The blog receives an average 900 views and 18000 search impressions per month.

Education

2015—2018 MSc (Hons) Mathematical Sciences, Utrecht University, *cum laude*

2016—2017 Masterclass Geometry, Topology and Physics*,* University of Geneva*.*

2012—2015 BSc Mathematics, Utrecht University, *cum laude.*

BSc Physics and Astronomy, Utrecht University, *cum laude.*

2006—2012 International Baccalaureate, International School Hilversum.

Certificates

2021 **Neuroscience and Neuroimaging**, John Hopkins University*, on Coursera.*

2020 **Genomic Data Science**, John Hopkins University*, on Coursera.*

*2019* **Advanced Machine Learning**, Higher School of Economics*, on Coursera.*

Publications

2022 *TTML: tensor trains for general supervised machine learning*

[arXiv:2203.04352](https://arxiv.org/abs/2203.04352), joint with Bart Vandereycken

2021 *On certain Hochschild cohomology groups for the small quantum group*

[arXiv:2104.05113](https://arxiv.org/abs/2104.05113), joint with Nicolas Hemelsoet.

2021 *A computer algorithm for the BGG resolution*

[Published in the Journal of Algebra](https://www.sciencedirect.com/science/article/abs/pii/S0021869320305135), joint with Nicolas Hemelsoet.

2018 *Parallel 2-transport and 2-group torsors*

[arXiv:1811.10060](https://arxiv.org/abs/1811.10060).