

Rik Voorhaar

Contact details

📞 **Phone:** +31 6 3986 5964
🏠 **Website:** rikvoorhaar.com

📍 **Location:** Copenhagen
🌐 **LinkedIn:** rik-voorhaar

✉️ **E-mail:** rik.voorhaar@gmail.com
🐙 **GitHub:** github.com/RikVoorhaar

Work experience

03/2018–12/2022 **PhD in Applied Mathematics** at *University of Geneva*.

Relevant projects:

- *Streaming Tensor Train Approximation* (GitHub: [tt-sketch](#))
 - Scalable randomized algorithm for approximating very large tensors.
 - Implemented using numpy and Cython. Fully documented, high test coverage, full use of Python typehints.
 - Manuscript expected to be finished 08/2022, and will be submitted to top numerical mathematics journal.
- *TTML: tensor trains for general supervised machine learning* (GitHub: [ttml](#))
 - Novel machine learning estimator using low-rank tensor approximations of discretized functions.
 - Uses advanced non-linear optimization methods and novel initialization techniques.
 - Implementation primarily with numpy with partial cross-library support. Fully documented, high test coverage.
 - Preprint submitted 03/2022 to top quartile machine learning journal.
 - Made contributions to two numerical open source libraries during project. (GitHub: [geoopt](#) and [autoray](#))
- *Computer algorithm of the BGG resolution & applications* (GitHub: [bgg-cohomology](#))
 - Implementation of important algorithm in computational algebra.
 - Code uses Cython and Sagemath and has high test coverage and full documentation.
 - Two publications in top quartile mathematics journal.
- *Personal blog*
 - 14 posts related to data science, statistics, computer vision, and numerical mathematics.
 - Blog attracts 1.2k monthly views, and is well-received by peers
- *Teaching*
 - Made Jupyter notebooks for courses on probability & statistics, convex optimization, and quantum computing. All notebooks have tests to give direct feedback to students.
 - Additionally assisted courses on programming, numerical analysis, mathematics for computer scientists, and hosted interactive tutoring sessions. Received consistent positive feedback from students for my teaching methods.
 - Created searchable website with solutions for two courses using Sphinx and Jupyter notebooks.

06/2021–12/2022 **Senior Scientific Editor** at *The Science Breaker* ([thesciencebreaker.org](#))

- Science communication journal publishing layperson summaries of peer reviewed research. Editing is collaborative process to improve readability for laypersons.
- Automated creation of PDF versions of articles using Jinja and LaTeX, with an interface made with Flask deployed on Heroku, saving around 10 minutes per published article.

Skills

Languages: *Bilingual:* English, Dutch. *Intermediate:* French. *Elementary:* Japanese, Russian, Spanish.
General: Machine learning, Bayesian Statistics, Computer vision, Software development, Time series analysis.
Programming: Python, C++, Mathematica, LaTeX, SQL, R.
Software: Docker, Git, Linux, Office Suite, Windows.
Libraries: Cython, Cupy, Numpy, Pandas, PyTorch, Scipy, Tensorflow.

Education

2018–2022 **PhD. Applied mathematics**, University of Geneva.
2015–2018 **Msc. (Hons.) Mathematical Sciences**, Utrecht University, *cum laude* (GPA 4.00).
2012–2015 **Bsc. Mathematics**, Utrecht University, *cum laude* (GPA 4.00).
Bsc. Physics and Astronomy, Utrecht University, *cum laude* (GPA 4.00).

Certificates

2021 **Neuroscience and Neuroimaging Specialization**, John Hopkins University, *on Coursera*.
2020 **Genomic Data Science Specialization**, John Hopkins University, *on Coursera*.
2019 **Advanced Machine Learning Specialization**, Higher School of Economics, *on Coursera*.