Rik Voorhaar

Resume

University of Geneva
+31 6 3986 5964
Rik.Voorhaar@unige.ch
rikvoorhaar.com

Personal statement

Mathematics PhD student specialized in researching **numerical** and **machine learning** algorithms. Several years' experience **Python software development**. Proficient in **data science** and **science communication**.

Experience

2018–present **Doctoral Candidate in Mathematics** *University of Geneva*
Research interests: Numerical analysis, tensor networks, optimization, machine learning.

I started my PhD in pure mathematics, but after two years I switched advisor and now I do research applied mathematics. I use advanced numerical methods to develop novel machine learning techniques. I spend a large part of my research time developing software. I have developed two extensive Python software libraries, leading to 2 publications and a 3rd in progress. I contributed code to 2 open-source projects.

2021–present **Junior scientific editor** *The Science Breaker*
I edit articles for a science communication journal. Authors submit layman summaries of their research to this journal, and my job is to make the article easier to understand and read a lay audience.

2020–present **Data science blog** *rikvoorhaar.com*
I often do data science projects as a hobby, and I maintain a blog where I talk about my hobby projects. The target audience varies from post to post, but I always try to keep explanations accessible to a wide audience.

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

2021 **Recovering data you have never seen**
published in The Science Breaker

2021 **On certain Hochschild cohomology groups for the small quantum group**
arXiv:2104.05113. *joint with Nicolas Hemelsoet.*

2021 **A computer algorithm for the BGG resolution**
Published in the Journal of Algebra, *joint with Nicolas Hemelsoet.*

2018 **Parallel 2-transport and 2-group torsors**
arXiv:1811.10060.

Languages

Fluent	English Dutch
Intermediate	French
Elementary	Japanese Russian

Skills

Algorithms
Data science
Machine learning
Mathematics
Research
Software development
Statistics
Teaching

Programming Languages

Advanced	Python
Intermediate	LaTeX Mathematica
Beginner	C / C++ R

Tools

General	Bash Docker Linux Windows
Libraries	CVXPY Cython Networkx NumPy Pandas PyTorch Sagemath SciPy Tensorflow