Benjamin Hansen

Bellevue | www.math.rug.nl/~hansen

EDUCATION

PHD, MATHEMATICS
Voronoi percolation in the hyperbolic plane
Pending Committee Approval | Groningen, NL

MS, MATHEMATICS
Western Washington University
2016 | Bellingham, WA

BS, MATHEMATICS
BA, ECONOMICS
Western Washington University
2014 | Bellingham, WA
Magna Cum Laude

AWARDS

COMAP INTERNATIONAL MODELING COMPETITION
Meritorious Team (Top 10%) (2014)

MATH DEPARTMENT
Western Washington University:
Graduate Student of the Year (2016)
Richard Greene Putnam Fellow (2013)

SKILLS

STATISTICS
Time Series Analysis
Singular Spectrum Analysis
Interval & Probabilistic Forecasting
Seasonal & Spatial Data Analysis
Logistic Regression

PROGRAMMING
R
Python

MATHEMATICS/CS
Wavelets
Fourier Analysis
Convolutional neural networks
Probability Theory
Spatial Infinite Graphs
Hyperbolic Geometry
Information Theory
Boolean Functions

EXPERIENCE

TEACHING ASSISTANT — University of Groningen
2016 - 2020 | Groningen, The Netherlands

- Supervisor for two students on Knuth's "Five-guess algorithm" for the game Mastermind
- Assisted the following classes: Functions and Series, Probability Theory, Statistics for Computer Science and Artificial Intelligence, Analysis of Boolean Functions and lead biweekly problem solving tutorials
- Co-Organizer for the STAR workshop on Random Graphs in 2017 and 2019 and the Groningen Stochastics Seminar

TEACHING ASSISTANT — Western Washington University
2015 - 2016 | Bellingham, WA

- Courses taught: College algebra, precalculus, and business calculus (classes of 30 students meeting daily + daily office hours)

FINANCIAL ANALYST & HIPAA COMPLIANCE PROJECT MANAGER — Haggen, Inc
2014-2015 | Bellingham, WA

- Created adaptive daily sales forecast for every department of all 18 stores, as well as models for newly acquired 146 stores.
- Coordinated with leadership in the Pharmacy, IT, Risk Management, & HR to update/create policies and workflows for the HIPAA Privacy and Security Manuals. Result: "Exemplary Provider" designation for Haggen pharmacy.

ANALYTICS TEAM LEADER — Democrats Coordinated Campaign
2012 | Bellingham, WA

- Organized a team of 3 to predict which voters likely needed to update their registration and estimate partisan lean of households

PUBLICATIONS

SHORT TERM INTERVAL FORECASTING | Joint work with Kimihiro Noguchi
"Improved short-term point and interval forecasts of the daily maximum tropospheric ozone levels via singular spectrum analysis," *Environmetrics*, 2017

- Method combined symmetrizing data transformation and time series modeling using singular spectrum analysis and autoregressive models.
- Proposed method outperform the standard method that does not consider data transformation and seasonality in volatility.

SPATIAL RANDOM GRAPHS | Joint work with Tobias Müller
"The critical probability for Voronoi percolation in the hyperbolic plane tends to $1/2$" (Submitted April 2020)