

Matz Andreas Haugen

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Education

2011-2016: PhD, Stanford University.

Advisors: Bala Rajaratnam and Paul Switzer

Dept. of Statistics and Dept. of Environmental Earth Systems Science

2011-2015: M.Sc. in Statistics, Stanford University.

2010-2011: Master of Adv. Study (Merit), Physics, Cambridge University.

2008-2010: M.Sc. Energy Resources Engineering (GPA: 3.8/4), Stanford University.

2005-2008: B.Sc. Physics (GPA: 3.8/4), McGill University.

Work Experience

Post-doctoral research scholar: Fall 2016-, University of Chicago, Chicago, Illinois.

Data Scientist: Summer 2015, Tesla Motors, Palo Alto, California.

Geophysicist: Summer 2009/2010, Statoil, Norway.

President: Stanford Chapter of International Association for Mathematical Geoscience
09/10.

Papers, preprints and other research output

M. Haugen, B. Rajaratnam, P. Switzer. Extracting Common Time Trends from Concurrent Time Series: Maximum Autocorrelation Factors with Application to Tree Ring Time Series Data. <http://arxiv.org/abs/1502.01073>, 2015.

M. Haugen, B. Rajaratnam, P. Switzer. Maximum Autocorrelation factors: Applications to paleoclimate reconstructions. *Technical report*, 2015

D.L Swain, M. Tsiang, M. Haugen, D. Singh, A. Charland, B. Rajaratnam, and N.S. Diffenbaugh. The extraordinary California drought of 2013-2014: character, context, and the role of climate change. *Bulletin of the American Meteorological Society- BAMS*, 95(9):S3-S7, 2014.

D. Singh, D.E. Horton, M. Tsiang, M. Haugen, M. Ashfaq, A. Charland, N.C. Johnson, R. Mei, D. Rastogi, B. Rajaratnam, and N.S. Diffenbaugh. Severe precipitation in northern India in June 2013: causes, historical context, and changes in probability. *Bulletin of the American Meteorological Society- BAMS*, 95(9):S58–S61, 2014.

Haugen, M. Characterizing 2-dimensional electron gases in semiconductors *Physics Master's Thesis* 2011

Haugen, M. Exploring Direct Sampling and Iterative Spatial Resampling in History Matching, *Energy Resources Master's Thesis*

Research interests & specializations

Machine Learning, Statistics, Convex Optimization, Data Science, Geoscience, Graphical Models, Data Mining.

Research Experience

PhD Thesis topic:

Extracting time trends from concurrent time series non-parametrically and developing mathematical models under which signal-to-noise ratio is optimized.

Geo-statistical Analysis:

Co-authored two papers on climate dynamics cited in approximately 100 media outlets by providing statistical analysis, hypothesis testing, and uncertainty propagation.

Ultra-High dimensional regression:

Developed a package in the open source library of R implementing correlation screening for variables in a high-dimensional setting where the number of predictors grows unboundedly while the number of observations stay fixed, as an alternative to the LASSO algorithm.

Physics Master's thesis (Cambridge University):

Exploring scattering mechanisms in induced 2-dimensional electron gases by probing multiple chips at low-temperatures to measure electron density and Quantum Hall effects.

Honors & Awards

The William Whiteford Fellowship in Earth Sciences, Stanford University

The Edmund Wattis Littlefield Fellowship in Earth Sciences, Stanford University

Engineers in the Arts, Music scholarship, Stanford University

Science Award from Centre International De Valbonne as best graduating science student, France: 2004

Teaching

Teaching Assistant: 2015, 2016 Winter, EESS 360/STATS 360: Advanced Statistical Methods for Earth System Analysis

Instructor: Summer 2008, Nesbru Senior High School (12th grade mathematics).

Programming Skills

Python, SQL, R, Matlab, HTTP, CSS

Last updated: October 9, 2016