Matz Andreas Haugen

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Education

2011-2016 (expected): PhD, Stanford University, Advisors: B. Rajaratnam and P. Switzer (Dept. of Statistics and Dept. of Environmental Earth Systems Science)

2011-2015 (expected): M.Sc. in Statisics, 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.

Research skills

Machine Learning, Statistics, Geoscience, Graphical Models, Data Mining, R programming language.

Research Experience

PhD Thesis topic:

Extracting time trends from concurrent time series non-parametrically and exploring mathematical models under which signal-to-noise ratio is optimized. The code is exclusively written in R, $\sim 10k$ lines.

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:

Currently developing a package in the open source library of R implementing correlation screening for variables in an high-dimensional setting where the number of predictors grows unboundedly while the number of observations stay fixed, as an altrenative 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.

Work Experience

Geophysicist: Summer 2009/2010, Statoil, Norway.

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

Instructor: Summer 2008, Nesbru Senior High School (12^{th} grade math).

The Norwegian Airforce: October, 2004–August, 2005.

Papers

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.

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. *Submitted*, 2014.

M.Haugen, M. Tsiang, B. Rajaratnam, A. Hero, H. Firouzi. Screening, Prediction and Regression via Correlation Analysis, an R package. *In Preparation*, 2014.

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

Last updated: December 18, 2014