
CURRICULUM VITAE
DR. BIRGIR HRAFNKELSSON
UNIVERSITY OF ICELAND

EDUCATION

- PhD in Statistics, August 1999
Department of Statistics, Texas A&M University
PhD thesis title: Principal Component Time Series and Autoregressive Estimates
PhD advisor: Prof. H. Joseph Newton
- MSc in Mechanical Engineering, June 1995
Department of Mechanical and Industrial Engineering, University of Iceland
MSc thesis title: Estimating Maximum Load in District Heating Systems
Icelandic MSc thesis title: Mat á hámarksálagi í hitaveitukerfum
MSc thesis advisor: Prof. Guðmundur R. Jónsson
- C.S. in Mechanical Engineering, June 1993
Department of Mechanical and Industrial Engineering, University of Iceland

AWARDS AND HONORS

- William S. Connor Memorial Award, Department of Statistics, Texas A&M University, May 1999

EXPERIENCE

- Professor of Statistics, Department of Mathematics, Faculty of Physical Sciences at University of Iceland, from July 2016.
- Associate Professor of Statistics, Department of Mathematics, Faculty of Physical Sciences at University of Iceland, from January 2012 - June 2016.
- Research Scholar at the Science Institute, University of Iceland, from January 2008 - December 2011.

- Assistant Professor at the Department of Mechanical and Industrial Engineering, Faculty of Engineering, University of Iceland, from September 2003 - December 2007.
- Part-time teacher at the Department of Mechanical and Industrial Engineering, Faculty of Engineering, University of Iceland, from fall 2001 - August 2003.
- Researcher at deCODE genetics, Reykjavík, Iceland, November 2001 - August 2003.
- Postdoctoral Researcher in the Modeling Department at the Marine Research Institute, Reykjavík, Iceland, 2000 - 2001.
- Part-time teacher at the School of Business, Reykjavík University, spring 2001.
- Part-time teacher at the Department of Mathematics, Faculty of Science, University of Iceland, From September 2000 - August 2003.
- Postdoctoral Researcher in the Program in Spatial Statistics and Environmental Sciences, Department of Statistics, The Ohio State University, 1999 - 2000.

CITATIONS

Citations * h-index * i10-index

- Summary: Citations:1441. h-index:20. i10-index:32. (Google scholar 11/09/2021)
- <https://scholar.google.com/citations?user=wGD6o0AAAAAJ&hl=en>

RESEARCH

Summary: 56 peer-reviewed journal publications.

Selected publications - refereed journals

- Hrafnkelsson, B., Siegert, S., Huser, R., Bakka, H. and Jóhannesson, Á.V. (2021) Max-and-Smooth: A two-step approach for approximate Bayesian inference in latent Gaussian models. *Bayesian Analysis*, **16**(2), 611-638.
- Gopalan, G., Hrafnkelsson, B., Adalgeirsdottir, G. and Palsson, F. (2021) Bayesian Inference of Ice Softness and Basal Sliding Parameters at Langjökull. *Frontiers in Earth Science*, **9**, No. 610069.
- Johannesson, A.V., Siegert, S., Huser, R., Bakka, H. and Hrafnkelsson, B. (2021) Approximate Bayesian inference for analysis of spatio-temporal flood frequency data. To appear in *Annals of Applied Statistics*.
- Geirsson, Ó. P., Hrafnkelsson, B., Simpson, D. and Sigurdarson, H. (2020) LGM split sampler: An efficient MCMC sampling scheme for latent Gaussian models. *Statistical Science*, **35**(2), 218-233.

- Kowsari, M., Sonnemann, T., Halldorsson, B., Hrafnkelsson, B., Snaebjornsson, J.P. and Jónsson, S. (2020) Bayesian inference of empirical ground motion models to pseudo-spectral accelerations of south Iceland seismic zone earthquakes based on informative priors. *Soil Dynamics and Earthquake Engineering* **132**, No. 106075.
- Gopalan, G., Hrafnkelsson, B., Wikle, C. K., Rue, H., Adalgeirsdottir, G., Jarosch, A. H. and Palsson, F. (2019) A hierarchical spatio-temporal statistical model motivated by glaciology. *Journal of Agricultural, Biological and Environmental Statistics*, **24**(4), 669-692.
Note: Giri Gopalan received the Laplace Award from the American Statistical Association, Section on Bayesian Statistical Science (ASA SBSS) for this paper.
- Kowsari, M., Halldorsson, B., Hrafnkelsson, B., Snaebjornsson, J. and Jónsson, S. (2019) Calibration of ground motion models to Icelandic peak ground acceleration data using Bayesian Markov chain Monte Carlo simulation. *Bulletin of Earthquake Engineering*, **17**(6), 2841-2870.
- Rahpeyma, S., Halldorsson, B., Hrafnkelsson, B., Green, R.A. and Jónsson S. (2019). Site effect estimation on two Icelandic strong-motion arrays using a Bayesian hierarchical model of spatial distribution of earthquake peak ground acceleration. *Soil Dynamics and Earthquake Engineering*, **120**, 369-385.
- Kowsari, M., Halldorsson, B., Hrafnkelsson, B. and Jónsson, S. (2019) Selection of earthquake ground motion models using the deviance information criterion. *Soil Dynamics and Earthquake Engineering*, **117**, 288-299.
- Palsson, M., Einarsson, P. and Hrafnkelsson, B. (2019) Variation in b-value of caldera earthquakes during recent activity of the Bardarbunga Volcano in Iceland. *Jökull*, **69**, 71-82.
- Scott, S.W., Covell, C., Júlíusson, E., Valfell, á., Newson, J., Hrafnkelsson, B., Pálsson, H. and Guðjónsdóttir, M. (2019) A probabilistic geologic model of the Krafla geothermal system constrained by gravimetric data *Geothermal Energy* **7**(1), 1-30.
- Gopalan, G., Hrafnkelsson, B., Adalgeirsdottir, G., Jarosch, A. H. and Palsson, F. (2018) A Bayesian hierarchical model for glacial dynamics based on the shallow ice approximation and its evaluation using analytical solutions. *Cryosphere*, **12**(7), 2229-2248.
- Rahpeyma, S., Halldorsson, B., Hrafnkelsson, B. and Jónsson, S. (2018) Bayesian hierarchical model for variations in earthquake peak ground acceleration within small-aperture arrays. *Environmetrics*, **29**(3), No. e2497.
Note: This paper was selected to appear in the virtual issue Bayesian Environmetrics.
- Eythorsson, D., Gardarson, S.M., Gunnarsson, A. and Hrafnkelsson, B. (2018) Statistical summer mass-balance forecast model with application to Bruarjokull glacier, southeast Iceland. *Journal of Glaciology*, **64**(244), 311-320.

- Sigurdarson, A.N. and Hrafnkelsson, B. (2016) Bayesian prediction of monthly precipitation on a fine grid using covariates based on a regional meteorological model output. *Environmetrics*, **27**(1), 27-41.
- Hrafnkelsson, B., Oddsson, G.V. and Unnthorsson, R. (2016) A method for estimating annual energy production using Monte Carlo wind speed simulation. *Energies*, **9**(4), No. 286.
- Geirsson, O. P., Hrafnkelsson, B. and Simpson, D. (2015) Computationally efficient spatial modeling of annual maximum 24-h precipitation on a fine grid. *Environmetrics*, **26**(5), 339-353.
- Hrafnkelsson, B., Ingimarsson, K.M., Gardarsson, S.M. and Snorrason, A. (2012) Modeling discharge rating curves with Bayesian B-splines. *Stochastic Environmental Research and Risk Assessment*, **26**(1), 1-20.
- Hrafnkelsson, B., Morris, J. and Baladandayuthapani, V. (2012) Spatial modeling of annual minimum and maximum temperatures in Iceland. *Meteorology and Atmospheric Physics*, **116**(1-2), 43-61.

Selected publications - submitted to arXiv

- Hrafnkelsson, B., Sigurdarson, H., Rögnvaldsson, S., Jansson, A.Ö., Vias, R.D. and Gardarsson, S.M. (2021) Generalization of the power-law rating curve using hydrodynamic theory and Bayesian hierarchical modeling. *arXiv preprint arXiv:2010.04769v2*

TEACHING AND ADVISING OF GRADUATE STUDENTS

PhD students

- Dr. Sveinn Margeirsson. 2008. Title: Processing forecast of cod. Decision making in the cod industry based on recording and analysis of value chain data. Faculty of Engineering, University of Iceland. BH was co-advisor.
- Dr. Eydís K. Sveinbjarnardóttir 2012. Title: Family systems nursing interventions in acute psychiatry: Implementation and evaluation. Faculty of Nursing, University of Iceland. BH was co-advisor.
- Dr. Þórólfur Guðnason 2013. Title: Infectious illnesses and pneumococcal carriage among preschool children at Icelandic day care centers: Epidemiology, risk factors and intervention. Faculty of Medicine, University of Iceland. BH was co-advisor.
- Dr. Narayan Soorya Venkataraman 2014. Title: Random parameter analysis of geometric effects on freeway crash occurrence. Faculty of Civil and Environmental Engineering, University of Iceland. BH was co-advisor.

- Dr. Óli Páll Geirsson. 2015. Title: Computationally efficient Bayesian statistical modeling and inference for latent Gaussian models with an application to spatial extremes. Faculty of Physical Sciences, University of Iceland. BH was main-advisor.
- Dr. Sigríður Sigurðardóttir. 2016. Title: Modelling and Simulation for Fisheries Management. Faculty of Industrial Engineering, Mechanical Engineering and Computer Science University of Iceland. BH was co-advisor.
- Dr. Þórhildur Ólafsdóttir. 2016. Title: Health and health behavior responses to macroeconomic shocks. Faculty of Economics, University of Iceland. BH was co-advisor.
- Dr. Saharalsadat Rahpeyma. 2018. Title: Analysis and modeling of earthquake strong-motion site effects on Icelandic arrays for earthquake engineering applications. Faculty of Civil and Environmental Engineering, University of Iceland. BH was co-advisor.
- Dr. Samúel Sigurðarson. 2018. Title: The impact of vaccination with conjugated pneumococcal vaccine on pneumococcal carriage and disease caused by pneumococci in Icelandic children. Faculty of Medicine, University of Iceland. BH was co-advisor.
- Dr. Milad Kowsari. 2019. Title: Bayesian inference of empirical ground motion models to Icelandic strong-motions and implications for seismic hazard assessment. Faculty of Civil and Environmental Engineering, University of Iceland. BH was co-advisor.
- Dr. Elías Eyþórsson. 2019. Title: The population impact and cost-effectiveness of the 10-valent pneumococcal conjugate vaccine in Iceland. Faculty of Medicine, University of Iceland. BH was co-advisor.
- Dr. Tim Sonnemann. 2019. Title: Earthquake Source Modelling and Broadband Ground Motion Simulation in South Iceland for Earthquake Engineering Applications. Faculty of Civil and Environmental Engineering, University of Iceland. BH was co-advisor.
- Dr. Giri Gopalan. 2019. Title: Spatio-temporal statistical models for glaciology. Faculty of Physical Sciences, University of Iceland. BH was main-advisor.
- Darri Eyþórsson. From 2016. Topic: Modeling of run-off from glaciers. Anticipated graduation in 2020. Faculty of Civil and Environmental Engineering, University of Iceland. BH is co-advisor.
- Andri Gunnarsson. From 2016. Topic: Analysis of remote sensing data from glaciers. Anticipated graduation in 2020. Faculty of Civil and Environmental Engineering, University of Iceland. BH is co-advisor.

- Farnaz Bayat. From 2019. Topic: Analysis of earthquake data. Anticipated graduation in 2022. Faculty of Civil and Environmental Engineering, University of Iceland. BH is co-advisor.
- Rohit Goswami. From 2021. Topic: Magnetic interactions of itinerant electrons modelled using Bayesian machine learning. Anticipated graduation in 2024. Faculty of Physical Sciences, University of Iceland. BH is co-advisor.