Karl Oskar Ekvall

Assistant Professor in Statistics and Data Science
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Employment

University of Florida

Assistant Professor 2022/08 - present

Karolinska Institutet

Assistant Professor 2021/11 - 2022/08

Postdoctoral Researcher 2020/06 - 2021/11

TU Wien

Postdoctoral Researcher 2019/03 - 2020/05

Education

University of Minnesota – Twin Cities

Ph.D. Statistics 2019

M.S. Statistics 2017

University of Gothenburg

M.Sc. Finance 2012

B.Sc. Economics 2011

Publications

THEORY AND METHODS

Molstad, Ekvall, and Suder, 2024, "Direct covariance matrix estimation with compositional data". *Electronic Journal of Statistics* (In press)

Ekvall and Bottai, 2023, "Concave likelihood-based regression with finite-support response variables". *Biometrics* 79(3): 2286–2297.

Ekvall and Bottai, 2022, "Confidence regions near singular information and boundary points with applications to mixed models". *Annals of Statistics* 50(3): 1806–1832.

Ekvall, 2022, "Targeted principal components regression". *Journal of Multivariate Analysis* 190: 104995.

Ekvall and Molstad, 2022, "Mixed-type multivariate response regression with covariance estimation". *Statistics in Medicine* 41(15): 2768–2785.

Ekvall and Jones, 2021, "Convergence analysis of a collapsed Gibbs sampler for Bayesian vector autoregressions." *Electronic Journal of Statistics* 15(1): 691–721.

Ekvall and Jones, 2020, "Consistent maximum likelihood estimation using subsets with applications to multivariate mixed models." *Annals of Statistics* 48(2): 932–952.

Ekvall and Jones, 2019, "Markov chain Monte Carlo." *Wiley StatsRef*.

COLLABORATIVE AND APPLIED

Gustin, Ekvall, Barman, Jacobsson, Sandin, Sandberg, Wold, Vahter, and Kippler, 2023, "Mediation by thyroid hormone in the relationships between gestational exposure to methylmercury and birth size." *Exposure and Health*.

Consulting

University of Minnesota, School of Statistics consulting clinic, approx. 70h 2017

U.S. Geological Survey, estimating monotonic trends in multivariate time series, 339 h 2016

Teaching

University of Florida

Introduction to / Foundations of probability, approx. 90h 2022 - 2023

Karolinska Institutet

Undergraduate biostatistics in bachelor's program in biomedicine, approx. 150h 2020 - 2021

Interprofessional learning day, 3h 2021

University of Minnesota – Twin Cities

Introduction for new teaching assistants, approx. 12h 2018 - 2019

Theory of statistics for advanced undergraduate students, approx. 84h 2017 - 2018

Statistical computing for undergraduate students, approx 84h 2018

Introductory statistics for undergraduate students*, approx. 252h 2014 - 2016

*as teaching assistant

Presentations

"Inference on some (nearly-)singular covariance matrices". 2022
CMStatistics, London, U.K.

"Inference on variance parameters near or at the boundary of the parameter set". 2022
University of Minnesota, School of Statistics, anniversary. Minneapolis, MN, USA.

"Reliable inference on small scale and variance parameters in mixed models". 2021
MEB biostatistics seminar. Stockholm, Sweden.

"Confidence intervals for small scale parameters". IMM research day. Stockholm, Sweden 2020

"Consistent maximum likelihood estimation in mixed models using subsets". 2020
Joint Statistical Meetings. Philadelphia, PA, U.S.

"Convergence analysis of a collapsed Gibbs sampler for Bayesian vector autoregressions". 2019
CMStatistics. London, U.K.

"Consistent maximum likelihood estimation in mixed models using subsets". 2019
University of Vienna seminar. Vienna, Austria

"Convergence analysis of a collapsed Gibbs sampler for Bayesian vector autoregressions". 2019
TU Wien colloquium. Vienna, Austria

"A multivariate linear model with separable correlation". 2017
International Chinese Statistical Association, applied statistics symposium. Chicago, IL, U.S.

Software

`lmmstest` R package for implementing a modified score test for scale parameters in linear mixed models. https://github.com/koekvall/lmmstest

`mmrr` R package for estimating mixed-type multivariate response regressions. https://github.com/koekvall/mmrr

`tpcr` R package for estimating targeted principal components regressions. https://github.com/koekvall/tpcr

Service

REVIEWER

Biometrika, Annals of Applied Statistics, Journal of Internal Medicine, Statistical Methods in Medical Research, Statistics in Medicine, National Science Foundation, Electronic Journal of Statistics, Journal of Computational and Graphical Statistics, Computational Statistics and Data Analysis, Annales de l'Institut Henri Poincaré

Awards

Miscellaneous

The American–Scandinavian foundation fellowship 2016

Fulbright foreign student program 2014

Tom Hedelius foundation scholarship 2014

Sixten Gemzéus foundation scholarship 2014

Malmsten award for best thesis in M.Sc. in Finance program 2014

University of Minnesota – Twin Cities

Graduate research partnership program fellowship 2017

Lynn Y.S. Lin fellowhsip for statistical consulting 2016

School of Statistics first year scholarship 2014

Student supervision

Yiqiao Zhang, Ph.D. in Statistics, University of Florida. 2022-

Jonatan Risberg (M.Sc. in applied mathematics). Six week summer research project. 2021