JEFFREY NÄF

Researcher - Statistician

CONTACT

jeffrey@my-sh.ch

Linkedin

Website

Orcid

Google Scholar

SKILLS

Python 1+ yrs

R 6+ yrs

Matlab 6+ yrs

TEACHING

Teaching Assistant 2018-21
Fundamentals of Mathematical Statistics
ETH Zürich

Lecturer 2017/18
Fundamental Probability for Finance
University of Zurich

Teaching Assistant 2012-14
Introductory Econometrics
University of Zurich

AWARDS

Rigour and Relevance Research Award 2022
Swiss Academy of Marketing Science

Prize for outstanding Master Thesis 2015
University of Zurich

RESEARCH INTERESTS

nonparametric statistics, kernel methods, probabilistic modeling, uncertainty quantification, missing values

EDUCATION

PhD in Statistics, ETH Zurich 2018 - 2023
Supervisor: Nicolai Meinshausen

My thesis is centered around Random Forest (RF) and various applications. In particular, we developed non-parametric two-sample tests and a measure of quality of imputation methods for missing data. We finally developed a natural generalization of the RF that allows for an efficient non-parametric estimation of the whole conditional distribution.

Master of Science in Statistics ETH Zurich 2015 - 2017
Final GPA – 5.85 out of 6

Master Thesis: *Review of Asymptotic Results in Empirical Process Theory*, with Prof. Dr. Sara van de Geer.

Master of Arts in Business Administration University of Zurich 2013 - 2018
Final GPA – 5.80 out of 6

Master Thesis: *New Generalized Student t Distribution with Differing Tail Indexes for Each Margin*, with Prof. Dr. Marc Paolella.

Bachelor of Arts in Economics, University of Zurich 2010 - 2014
Final GPA – 5.35 out of 6

Bachelor Thesis: *Re-evaluating Takahashi Korekiyo's Role in Japan's Recovery from the Great Depression*, with Prof. Dr. Mathias Hoffmann, Dr Alexander Rathke.

WORK EXPERIENCE

Postdoc 2023
PreMeDICaL Team, Inria Montpellier, France

Full time researcher

Doctoral Student and Group Coordinator of the Seminar for Statistics May 18 - Feb 23
ETH Zurich, Switzerland

Research combined with teaching and organizing the courses and exams at the Seminar for Statistics at ETHZ, as the Group Coordinator.

Research Assistant at the Chair of Empirical Finance Jun 15 - May 18
University of Zurich, Switzerland

Working on research projects, such as the development of new multivariate distributions for portfolio applications.

OUTREACH

Author and Contributor to various Medium articles in Towards Data Science, such as ongoing

- DRF: A Random Forest for (almost) everything
- CLVTools: A powerful R package to evaluate your customers
- I-Scores: How to choose the best method to fill in NAs in your data set
- Nonlinear Shrinkage: An Introduction
- Deep Dive into HPLBs for A/B Testing using Random Forest
- Random Forests in 2023: Modern Extensions of a Powerful Method

SOFTWARE

CLVTools R package ongoing

Part of the developer community of the CLVTools R Package for customer evaluation. The package contains efficiently implemented versions of some of the most important models for customer lifetime evaluation.

Iscores R package ongoing

Package to rank Imputation methods

drf R package ongoing

Package implementing Distributional Random Forests

HPLB R package ongoing

Package implementing High Probability Lower Bounds for the Total Variation Distance

Research Assistant at the Chair of Marketing and Market Research Jun 14 - May 18
University of Zurich, Switzerland

Working on research projects such as the extension of the Pareto/NBD model to allow for time-varying covariates and implementation of the derivations in R.

Assistant at the Chair of Microeconomics/Industrial Organization Jun 14 - May 18
University of Zurich, Switzerland

Administrative tasks and programming in Mathematica and LaTeX.

PUBLICATIONS

What Is a Good Imputation Under MAR Missingness? HAL
HAL preprint, 2024

Authors: J. Näf, J. Josse

Combining the MGHyp Distribution with Nonlinear Shrinkage in Modeling Financial Asset Returns JEF
Journal of Empirical Finance

Authors: S. Hediger, J. Näf

MMD-based Variable Importance for Distributional Random Forest AISTATS
AISTATS, 2024

Authors: Clément Bénard, Jeffrey Näf, Julie Josse

Confidence and Uncertainty Assessment for Distributional Random Forests JMLR
Journal of Machine Learning Research, 2023

Authors: J. Näf, C. Emmenegger, P. Bühlmann, N. Meinshausen

R-NL: Covariance Matrix Estimation for Elliptical Distributions based on Nonlinear Shrinkage IEEE
IEEE Transactions on Signal Processing, 2023

Authors: S. Hediger, J. Näf, M. Wolf

Heterogeneous Tail Generalized Common Factor Modeling Digital Finance
Digital Finance, 2023

Authors: S. Hediger, J. Näf, M. S. Paolella, P. Polak

Imputation Scores AOAS
Annals of Applied Statistics, 2023

Authors: J. Näf, M. Spohn,L. Michel, N. Meinshausen

Distributional Random Forests: Heterogeneity Adjustment and Multivariate Distributional Regression JMLR
Journal of Machine Learning Research, 2022

Authors: D. Cévid, L. Michel, J. Näf, N. Meinshausen, P. Bühlmann

On the Use of Random Forest for Two-Sample Testing CSDA
Computational Statistics and Data Analysis, 2022

Authors: S. Hediger, L. Michel, J. Näf

MISCELLANEOUS

First Dan (Black Belt) Shotokan Karate

Coffee lover with advanced Barista skills

The Role of Time-Varying Contextual Factors in Latent Attrition Models for Customer Base Analysis — MS
Marketing Science, 2021

Authors: P. Bachmann, M. Meierer, J. Näf

PKLM: A flexible MCAR test using Classification — arXiv
Major Revision in Psychometrika

Authors: L. Michel, J. Näf, M. Spohn, N. Meinshausen

High Probability Lower Bounds for the Total Variation Distance — arXiv
arXiv preprint, 2020

Authors: L. Michel, J. Näf, N. Meinshausen

Heterogeneous tail generalized COMFORT modeling via Cholesky decomposition — JMVA
Journal of Multivariate Analysis, 2019

Authors: J. Näf, M. S. Paolella, P. Polak

SERVICE

Reviewer
Annals of Statistics/ Journal of Computational and Graphical Statistics/ICML

TALKS & EVENTS

Invited Workshop Talk — March 2024
Applied Statistical Workshops, UC Louvain

Presenting "What Is a Good Imputation Under MAR Missingness"

ICSDS — December 2023
IMS International Conference on Statistics and Data Science, Portugal

Presenting "Distributional Random Forests"

Invited Seminar Talk — November 2023
Lund University

Presenting "Distributional Random Forests"

Traumabase Hackaton — October 2023
Avignon

Working on a predictive model to categorize trauma patients

Invited Seminar Talk — October 2023
University of Geneva

Presenting "A Joint Model in Non-Contractual Business Settings"

Invited Seminar Talk — May 2023
Sorbonne University

Presenting "Distributional Random Forests"

EcoSta June 2022
5th International Conference on Econometrics and Statistics, Japan
Presenting the working paper "Combining the MGHyp Distribution with Nonlinear Shrinkage in Modeling Financial Asset Returns"

Invited Seminar Talk May 2022
University of Montpellier
Presenting the paper "Imputation Scores"

EcoSta June 2019
3rd International Conference on Econometrics and Statistics, Taiwan
Presenting the paper "On the Use of Random Forest for Two-Sample Testing"

REFERENCES

Nicolai Meinshausen ETH
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Peter Bühlmann ETH
Seminar for Statistics, ETH Zurich
buhlmann@stat.math.ethz.ch

Julie Josse PreMeDICaL
PreMeDICaL Inria-Inserm
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Markus Meierer UNIGE
Institute of Management
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