Patrick Aschermayr

Seeking a challenging and research-driven environment where I can make a meaningful contribution.

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DOCTORAL RESEARCH

Bayesian Inference on State Space Models

My research area evolves around sequential parameter estimation and prediction for dependent latent variable models in a times series setting. In particular, I am working to improve the scalability of existing algorithms in terms of time and parameter size. This is particularly useful for financial and economic data, which often appear in a sequential setting.

WORK EXPERIENCE

(PT) 2016 – 2018
University of Zurich & ZZ (Schweiz) AG — Zurich, CH
PMP - Portfolio Manager & Analyst
I participated in a unique program where students manage parts of the university endowment. With three colleagues, I managed 2mn€ during my time in Switzerland. The focus of our Global Macro strategy was on Carry and Value, implemented via Bonds, Forwards, NDFs and Futures.

(INTERN) 04/2016 – 07/2016
Deutsche Bank — Frankfurt, GER
Research - Strategic Beta Intern
I supported colleagues during the launch of Deutsche Asset model & strategy portfolios and implemented internal analysis tools, such as an order tool or performance & factsheets for mandates.
Case study: Breaking Expectations in a Diminishing Return Environment

(INTERN) 10/2015 – 03/2016
Deutsche Asset Management — Frankfurt, GER
Portfolio Management - Multi Asset Intern
I implemented internal analysis tools, such as an index forecasting tool, sector update & a new issue sheet and supported PMs in daily tasks. *Case study: Hedging Convertible Bond Portfolios*

PROJECTS

(08/2019 –) ONGOING
Sequential Bayesian Inference Ecosystem
I have open sourced several software libraries on Markov Chain and Sequential Monte Carlo methods. For instance, Baytes.jl is a package to perform Bayesian inference. It consists of several sub-libraries, such as BaytesMCMC.jl, BaytesFilters.jl, BaytesPMCMC.jl and BaytesSMC.jl, and provides an interface to combine kernels from these packages. Moreover, I created a library to perform Automatic Differentiation on (nested) Model parameter structures, see ModelWrappers.jl.

(09/2020 – 12/2020) FINISHED
State Space Models Everywhere
A blog series on my website introducing hidden Markov and semi-Markov models in more detail. Later on, I build a Particle MCMC algorithm from scratch to estimate parameter from said models.

EDUCATION

2018 –
LONDON, UK
Doctor of Philosophy
Statistics
London School of Economics and Political Science
FULLY FUNDED BY THE ESRC

2016 – 2018
ZURICH, CH
Master of Science
Quantitative Finance
ETH Zurich, University of Zurich
GPA: 5.4 (BEST:6.0)

2012 – 2015
VIENNA, AUT
Bachelor of Science
Economics, Business and Social Sciences
Vienna University of Economics and Business
GPA: 1.3 (BEST:1.0)

REFERENCES

References available on request

CORE SKILLS

STATISTICAL ML	Bayesian Inference, particularly: Parameter estimation Prediction State space models (HMMs and beyond)
ALGORITHMS	Markov Chain Monte Carlo Sequential Monte Carlo
COMPUTING	Julia, R, Python LaTeX, Git
SOFT SKILLS	Critical Thinking Communication (Teaching and Blogging) Adaptability
FINANCE KNOWLEDGE	Basic Global Macro Backtesting

MISCELLANEOUS

LANGUAGES	German (Native), English (Fluent)
INVOLVEMENT	LSE PhD student representative Zurich QFin Alumni club Local tennis and table football club
INTERESTS	Books (fantasy, manga) Sports (football, fitness) Cooking (Austrian, Asian) Gaming (Pokemon)

PUBLICATIONS

Articles in Peer-Reviewed Journals

Articles under Review

Working Papers

Book Chapters

Conferences and Presentations

05/2019 I presented my Particle MCMC poster at the Social and Economic Data Science Summit in London, UK.

Invited Talks

First author publications in **bold**

GRANTS AND AWARDS

Awards and Honors

Grants and Fellowships

2018 – 2022 Economic and Social Research Council (ESRC) studentship

TEACHING EXPERIENCE

London School of Economics

2022 Bayesian Inference - Teaching assistant, third year Bachelor level
2021 Bayesian Inference - Teaching assistant, third year Bachelor level
2020 Bayesian Inference - Teaching assistant, third year Bachelor level
2019 Quantitative Methods - Teaching assistant, first year Bachelor level

SERVICE

Journal Peer Review

2020 Journal of the Royal Statistical Society: Series C (Applied Statistics) - Referee

PROFESSIONAL AFFILIATIONS

CONSULTING ENGAGEMENTS