BENEDIKT J. KOCH

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EXECUTIVE SUMMARY

Statistics PhD student at Harvard University and MSc graduate at the University of Oxford and ETH Zurich with specializations in Causal Inference, Statistical Machine Learning, and Probability Theory. Previous Data Science employment at QuantCo (Healthcare) and HSBC (Finance), with a focus on Statistical Modeling. Extensive military background with training in leadership and teamwork.

EDUCATION

PhD Statistics, Harvard University, USA   *from September 2023 onwards*
· Advisor: Kosuke Imai

MSc Statistical Science, University of Oxford, UK   *October 2022 – September 2023*
· GPA (so far): 82.2/100 ("Distinction")
· Specializations: Causal Inference, Advanced Statistical Machine Learning, Algorithmic Foundations of Learning
· Master Thesis: "Proximal Causal Learning and its connection to GMM" (working title) with Frank Windmeijer in the field of Causal Inference and Machine Learning

MSc Applied Mathematics, ETH Zurich, Switzerland   *September 2019 – December 2021*
· GPA: 5.92/6.0 (top 5%), graduated with "Distinction"
· Specializations: Advanced Probability Theory, Stochastic Calculus, Mathematical Finance, Machine Learning
· Student assistant for the course "Probability Theory and Statistics" for mathematicians (Spring 2021)
· Master Thesis: "Robust asymptotic growth in Stochastic Portfolio Theory (SPT) under long-only constraints and stochastic covariance structure" in the field of Probability Theory and Stochastic Calculus with Josef Teichmann
· My master thesis's novel approach led to a research collaboration with Martin Larsson (CMU) and David Itkin (Imperial) that solved a 20-year-old research question in SPT

BSc Mathematics, University of Vienna, Austria   *October 2016 – July 2019*
· GPA: 1.3/1.0* (top 5%), graduated with "Distinction"

PUBLICATIONS

· **Proximal Causal Learning and its connection to GMM**, *Working Paper*, Koch and Windmeijer
· **Ergodic robust maximization of asymptotic growth under stochastic volatility**, 2022, *Submitted*, Itkin, Koch, Larsson and Teichmann, *arXiv: https://arxiv.org/abs/2211.15628*

EXPERIENCE

Data Scientist, QuantCo, Germany   *September 2021 – September 2022*
· Designed and implemented a new statistical health insurance pricing model with ML techniques to determine fair health insurance prices for over 800,000 people without discriminating by race, gender or wealth
· Developed ML tools for actuaries to appropriately allocate funds in the amount of 120,000,000€
· Re-engineered the pricing process, which led to a hundredfold increase in speed and efficiency

Data Science & Engineering Intern, HSBC, UK   *June 2021 – August 2021*
· Proposed and implemented an improved statistical credit risk scoring model which remains in use
· Designed a new method of aggregating data which led to a twelvefold increase in usable data
· Analysed and transformed data in Apache Spark

Mathematical Analyst, Other Internships, Austria
· Ministry of Defence: designed and implemented a trajectory prediction algorithm   *February 2019*
· Aon Austria: data and mathematical insurance analysis   *August 2018 – September 2018*

Prospective Officer, Austrian Armed Forces, Austria
· Leading supply chain position responsible for supplying up to 700 people   *since August 2016*
· Recruit Instructor (Sergeant), trained groups of up to 120 new conscripts   *July 2017 – August 2017*
· Military service to become an officer of the Austrian Miliz (active reserve)   *September 2015 – August 2016*

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*Austrian University Grading Scale from 1.0 (best) to 5.0 (fail)

TECHNICAL SKILLS AND INTERESTS

Programming Languages	Python (advanced), R (intermediate), MATLAB (intermediate)
Databases	SQL (intermediate), Apache Spark (basic)
Languages	German (native), English (fluent) - 114/120 TOEFL iBT
Extracurricular Experience	Oxford AI Society, Head of parish youth group (voluntary work)
Interests	Ski Tours, Running, Classical Dance, Philosophy and History