ALEXANDROS GILCH

Contact

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Education

Ph.D. in Economics since 2020
University of Bonn

M.Sc. in Economic Research (GPA: 1.2) 2020–2022
University of Bonn

M.Sc. in Mathematics (GPA: 1.3) 2017–2020
University of Bonn

B.Sc. in Mathematics (GPA: 1.4) 2014–2017
University of Göttingen
– Exchange student: University of Warwick, 2016–2017

Research Interests

Computational Economics, (International) Macroeconomics, Structural Econometrics

Job Market Paper

Inference for Missing Data in State-Space Models
with Gregor Reich (Tsumcor Research AG).
Nonlinear, non-Gaussian state-space models are a standard tool for analyzing time series or panel data with latent state variables, but estimating their parameters and, even more so, the latent states is challenging. We provide a comprehensive methodology to estimate the latent states, particularly addressing two issues: First, because the latent state is serially correlated, accurate point estimators and prediction bands require evaluating high-dimensional integrals arising from marginalizing the latent path. We propose a deterministic recursive quadrature and interpolation (RQI) algorithm to approximate these integrals, exploiting the efficiency of lower-dimensional numerical algorithms. Second, ignoring uncertainty about the model parametrization yields overconfident prediction bands. We develop a framework of prediction-band unions that incorporate parameter uncertainty, which can be computed via a sequence of constrained optimization problems solvable with off-the-shelf packages. We demonstrate the efficiency of RQI in extensive Monte Carlo studies for a Stochastic Volatility model, benchmarking against RQI a popular particle smoothing algorithm. Finally, we conduct full predictive inference for a sequence of endogenously unobserved prices using data from a steel-trading firm and a dynamic profit-maximization model.
Working paper

Publications

"Small Data": Efficient Inference with Occasionally Observed States
with Andreas Lanz, Philipp Müller, Gregor Reich, and Ole Wilms.
Accepted at *Management Science*, 2025.
Published version • Working paper

Sparse Tensor Product Approximation for a Class of Generalized Method of Moments Estimators
with Michael Griebel and Jens Oettershagen.
International Journal for Uncertainty Quantification, 2022.
Published version • Working paper

Work in Progress

Financial Sanctions Interact(ed) with Trade Sanctions
with Christian Bayer, and Farzad Saidi.
Working paper .

Asymptotic Properties of the Maximum Likelihood Estimator under Occasionally Observed States
with Gregor Reich, and Ole Wilms.
Working paper

Presentations

(* indicates presentation by co-author)

EC-CEPR-JIE conference "Global Shocks"*, Penn Macro Lunch Seminar, Penn Econometrics Lunch Seminar — 2025

ASSA Winter Meeting 2024, Bonn Finance Seminar (Brown Bag), Bonn Macro Lunch Seminar, Bonn-Frankfurt-Mannheim PhD conference, 3rd Kiel-CEPR Conference on Geoeconomics, IMFS Research Workshop, CRC TR224 Retreat — 2024

Bonn-Frankfurt-Mannheim PhD conference, CRC TR224 Retreat — 2023

Teaching

University of Bonn
– Econometrics (B.Sc. Economics), teaching assistant — 2022, 2023
– Corporate Finance (B.Sc. Economics), teaching assistant — 2022
– Numerical Mathematics I (B.Sc. Mathematics), teaching assistant — 2018, 2019
– Numerical Mathematics II (B.Sc. Mathematics), teaching assistant — 2018

Affiliations and Scholarships

Collaborative Research Center TR 224, Fellow since 2023
Universities of Bonn and Mannheim

Doctoral scholarship 2020–2025
Bonn Graduate School of Economics

Studienstiftung scholarship 2015–2020
German Academic Scholarship Foundation

Other Work and Research Experience

Visiting Ph.D. scholar, **University of Pennsylvania** 2025
Host: Prof. Dirk Krueger

Intern, **Deutsche Bundesbank**, Financial Stablity Department 2020

Research Assistant, **Institute for Numerical Simulation** 2019–2020
Group Prof. Michael Griebel

Intern, **d-fine GmbH** (consulting firm) 2019

Skills

Languages German (native), English (fluent), Greek, French (basic)

Software Python, MATLAB, Stata, LaTeX, git

Bonn, October 10th, 2025