THOMAS WIEMANN

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Education

Booth School of Business, Postdoctoral Scholar in Marketing *2025–2026*

University of Chicago, Ph.D. in Economics *2019–2025*

University of Oxford, M.Sc. in Statistical Science *2018–2019*

Erasmus University Rotterdam, B.Sc. in Econometrics & Operations Research *2014–2018*

Erasmus University Rotterdam, B.Sc. in Economics & Business Economics *2014–2018*

Research Interests

Topics: Personalization, Pricing, Causal Inference
Methods: Machine Learning, Bayesian Nonparametrics, Structural Demand Models

References

Professor Sanjog Misra
University of Chicago
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Professor Christian Hansen
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Professor Stéphane Bonhomme
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Professor Alexander Torgovitsky
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Job Market Paper

Personalization with HART

Abstract: *Firms personalize prices, advertising, product design, and more to find and serve their—often highly heterogeneous—consumers. When personalizing to* known *consumers, these marketing decisions can be informed by past choice behavior. However, personalization must rely on observed characteristics for* new *consumers with limited or no purchase histories. I propose Bayesian* hierarchical *additive regression trees (HART) to define optimal marketing decisions that adapt to the firm's familiarity with the consumer. HART combines the strengths of supervised machine learning and hierarchical*

Bayesian models in one framework: First, it flexibly leverages potentially many observed characteristics to personalize to new consumers. Second, it optimally adapts to the consumer's specific preferences as their choices are recorded over time. I develop an efficient Metropolis-within-Gibbs sampler for fully Bayesian inference and apply it in two discrete-choice applications. Using data from a canonical conjoint study, I illustrate how HART discovers marketing opportunities for product design in new markets. In a CPG scanner data application, HART leverages observed characteristics to improve out-of-sample choice prediction by 60% for new consumers, and raises profits by 13% and 2% compared to conventional personalization approaches for new and known consumers, respectively.

Working Papers

Optimal Categorical Instrumental Variables
Revise and Resubmit, Journal of Business & Economic Statistics

An Introduction to Double/Debiased Machine Learning
with Achim Ahrens, Victor Chernozhukov, Christian Hansen, Damian Kozbur, Mark Schaffer
Revise and Resubmit, Journal of Economic Literature

Demand Estimation with Finitely Many Consumers
with Jonas Lieber

Guarantees on Correct Conclusions with Incorrect Likelihoods

Effects of Health Care Policy Uncertainty on Households' Portfolio Choice
with Robin L. Lumsdaine

Publications

Model Averaging and Double Machine Learning
with Achim Ahrens, Christian Hansen, Mark Schaffer
Journal of Applied Econometrics, 2025, 40(3): 249-269.

ddml: Double/Debiased Machine Learning in Stata
with Achim Ahrens, Christian Hansen, Mark Schaffer
Stata Journal, 2024, 24(1): 3-45.

Work in Progress

Machine Learning learns Bayes with Andrew Bai, Sanjog Misra

Awards, Scholarships, and Grants

Robert Lucas Jr. Fellowship, University of Chicago	*2024–2025*
CV Starr Fellowship, University of Chicago	*2024–2025*
J. Lawrence Laughlin Fellowship, University of Chicago	*2024–2025*
Graduate Fellowship, University of Chicago	*2019–2024*
ERP Fellowship, German Ministry for Economic Affairs and Energy	*2019–2020*
Fellowship, German Academic Scholarship Foundation	*2015–2019*

Teaching Experience

Applied Bayesian Econometrics (PhD)	TA for Prof. Sanjog Misra	*Winter 2025*
Econometrics (Undergraduate)	College Lecturer	*Spring 2022*

Optimization-Conscious Econometrics (PhD)	TA for Prof. Guillaume Pouliot	*Winter 2022*
Applied Microeconometrics (PhD)	TA for Prof. Alexander Torgovitsky	*Fall 2021*
Econometrics (Undergraduate)	TA for Prof. Max Tabord-Meehan	*Spring 2021*
Microeconomics (Undergraduate)	TA for Prof. Robert Dur	*Spring 2017*
Applied Econometrics (MSc)	TA for Prof. Sacha Kapoor	*Fall 2016*

Other Employment

Research Assistant for Prof. Christian Hansen, Booth School of Business, Chicago *2020-2024*

Economist Intern, Consumer Behavior Analytics Team, Amazon, Seattle *2022*

Research Assistant for Prof. Philip Hans Franses, Econometric Institute, Rotterdam *2018*

Research Assistant for Prof. Zareh Asatryan, ZEW, Mannheim *2017*

Research Assistant for Prof. Sacha Kapoor, Erasmus University Rotterdam, Rotterdam *2016*

Professional Experience

Co-founder and Organizer of the Comp. Methods in Econ. Workshop, University of Chicago *2021-2023*

Graduate Student Liaison, University of Chicago *2020-2023*

Undergraduate Student Liaison, Erasmus University Rotterdam *2015-2017*

Conferences

2025: *ISMS Marketing Science (Washington, D.C.)*
2024: *North American Winter Meeting of the Econometric Society (San Antonio)*
2023: Royal Economic Society (Glasgow), Optimization Conscious Econometrics Conference (Chicago), North American Summer Meeting of the Econometric Society (UCLA), International Association for Applied Econometrics (Oslo)
2022: Summer Institute for Applied Artificial Intelligence (Chicago)
2019: Society for Financial Econometrics (Shanghai), International Association for Applied Econometrics (Nicosia), Stanford Institute for Theoretical Economics Workshop on Macroeconomic Uncertainty (Stanford)

Refereeing Activity *Journal of Econometrics*

Software

ddml: Double/debiased machine learning in Stata

ddml: Double/debiased machine learning in R

kcmeans: Conditional expectation function estimation with K-conditional-means

civ: Categorical instrumental variables

bayesm.HART: MCMC sampler for Bayesian multinomial logit models with HART priors

Additional Information

Programming Skills R, C++, Julia, Python, PySpark, SQL, MATLAB, Stata

Languages German (Native), English (Fluent)

Citizenship German

This version: June 30, 2025