GUSTAV KARRESKOG

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Current Position

2021–   **POSTDOCTORAL RESEARCHER**
Dept. of Economics, Uppsala University

Education

2015–2021   **DOCTOR OF PHILOSOPHY IN ECONOMICS**
Stockholm School of Economics
Primary supervisor (from 2021-01-01): Assoc. Prof. Mark Voorneveld
Primary supervisor (until 2020-12-31): Prof. Jörgen Weibull
Secondary supervisor: Assoc. Prof. Erik Mohlin

References

Prof. Jörgen Weibull	**Prof. Drew Fudenberg**
Dept. of Economics, SSE	Dept. of Economics, MIT
jorgen.weibull@hhs.se	*drewf@mit.edu*
Assoc. Prof. Erik Mohlin	**Assoc. Prof. Mark Voorneveld**
Dept. of Economics, Lund University	Dept. of Economics, SSE
erik.mohlin@nek.lu.se	*mark.voorneveld@hhs.se*

2014–2015   **M.Sc. IN ECONOMICS**
Stockholm School of Economics
Unfinished due to admittance to the PhD program

2012–2014   **M.Sc. IN MATHEMATICS**
Stockholm University

2010–2012   **B.Sc. IN MATHEMATICS**
Stockholm University

Research Visits

2018–2019   **Dept. of Economics, Massachusetts Institute of Technology**
Faculty Sponsor: Prof. Drew Fudenberg

Teaching and Research Fields

FIELDS   Microeconomic Theory, Behavioral Economics, Experimental Economics

TOPICS   Machine Learning, Bounded Rationality, Learning in Games

Working Papers

"Rational Heuristics for One-Shot Games"
with Frederick Callaway and Thomas L. Griffiths **[Job Market Paper]**

"Predicting Cooperation with Learning Models"
with Drew Fudenberg

"Stochastic Stability of a Recency Weighted Sampling Dynamic"
with Alexander Aurell

Ongoing projects

"Cue Based Decision Making and Context Effects"
with Benjamin Mandl

"Estimation of Learning Models Using Approximate Bayesian Computation"

Journal Publication in Mathematics

"Schrödinger operators on graphs: symmetrization and Eulerian cycles"
Proceedings of the American Mathematical Society, 144, (2016)
with Isak Trygg Kupersmidt and Pavel Kurasov

Research Grants and Awards

2017	Tom Hedelius Scholarship for research visit to MIT.
2014	Scholarship for excellent Master Thesis from Mittag-Leffer's fund.

Teaching

Stockholm School of Economics
2020	TA: Global Challenges - Undergraduate course
2017	TA: Economics of Organization - Undergraduate course
2016,2017	Math summer camp - Preparatory math class for incoming Ph.D. students
2016,2017	TA: Mathematics I - Introductory mathematics for Ph.D. students
2016	TA: Advanced Microeconomics - Advanced level course on microeconomic theory

2012–2015 **Amanuensis**, Dept. of Mathematics, Stockholm University
Primarily teaching assistant in undergraduate mathematics. I also developed (designed and coded) a web-platform for a large distance course in preparatory mathematics.

Presentations Outside of Home Department

2021	Arne Ryde Workshop, Lund; Games, 6th World Congress of the Game Theory Society, Budapest; Applied Micro Seminar, Goethe University Frankfurt
2020	Nordic Exchange, NHH, Bergen; SUDSWEC, Uppsala University; ENTER/SWIPS, University College London
2019	Phd Math Fest, Stockholm; SING 15, Turku; Theory Lunch, MIT, Boston
2018	Theory Lunch, MIT, Boston

Other Skills

Languages
Swedish (native), English (fluent), Spanish (very good)

Programming
Julia, Python, R, Web Development (HTML, CSS, javascript, SQL, basic linux server administration etc.), and workable knowledge in many more such as STATA, Matlab, and Mathematica.

Job Market Paper

"Rational Heuristics for One-Shot Games"
with Frederick Callaway and Thomas L. Griffiths (Dept. of Psychology, Princeton University)

Insights from behavioral economics suggest that perfect rationality is an insufficient model of human decision-making. However, the empirically observed deviations from perfect rationality or biases vary substantially among environments. There is, therefore, a need for theories that inform us when and how we should expect deviations from rational behavior. We suggest that such a theory can be found by assuming optimal use of limited cognitive resources. In this paper, we present a theory of human behavior in one-shot interactions based on the rational use of heuristics. We test our theory by defining a broad family of heuristics for one-shot games and associated cognitive cost functions. In a large, preregistered experiment, we find that behavior is well predicted by our theory, which yields better predictions than existing models. We find that the participants' actions depend on their environment and previous experiences, in the way the rational use of heuristics suggest.

Working Papers

"Predicting Cooperation with Learning Models"
with Drew Fudenberg (Dept. of Economics, MIT)

We use simulations of a simple learning model to predict how cooperation varies with treatment in the experimental play of the indefinitely repeated prisoner's dilemma. We suppose that learning and the game parameters only influence play in the initial round of each supergame, and that after these rounds play depends only on the outcome of the previous round. Using data from 17 papers, we find that our model predicts out-of-sample cooperation at least as well as more complicated models with more parameters and harder-to-interpret machine learning algorithms. Our results let us predict how cooperation rates change with longer experimental sessions, and help explain past findings on the role of strategic uncertainty.

"Stochastic Stability of a Recency Weighted Sampling Dynamic"
with Alexander Aurell (Dept. of Operations Research and Financial Engineering, Princeton University)

We introduce and study a model of long-run convention formation for rare interactions. Players in this model form beliefs by observing a recency-weighted sample of past interactions, to which they noisily best respond. We propose a continuous state Markov model, well-suited for our setting, and develop a methodology that is relevant for a larger class of similar learning models. We show that the model admits a unique asymptotic distribution which concentrates its mass on some minimal CURB block configuration. In contrast to existing literature of long-run convention formation, we focus on behavior inside minimal CURB blocks and provide conditions for convergence to (approximate) mixed equilibria conventions inside minimal CURB blocks.