

WWZ Research Seminar
Faculty of Business and Economics, University of Basel

Tuesday, October 11, 2022, 12:30, S15, HG, WWZ and Zoom

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“Simulated Maximum Likelihood Estimation of Large Games” (joint with Andrin Pelican)

Abstract

This paper introduces a new simulation algorithm for evaluating the log-likelihood and score functions associated with a class of supermodular complete information discrete games. The algorithm allows for payoff function estimation in games with large numbers of players and/or many binary actions per player (e.g., games with tens of thousands of strategic binary actions). In such cases the likelihood of the observed pure strategy combination may be (i) very small and (ii) a high dimensional integral with a complex integration region. Direct numerical integration, as well as accept-reject Monte Carlo integration, are computationally impractical in such settings. In contrast, our method allows for accurate likelihood simulation with modest numbers of simulation draws. Use cases include simulated maximum likelihood (SML) parameter estimation in models of technology adoption, peer effects, and strategic network formation.

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