**Department of Economics
2025-2026
Seminar Series**

Monday, November 03, 2025
12:30 PM - 1:50 PM
SBS, Room N603

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Why so few types?

Abstract: The nonparametric mixed logit model can approximate any discrete choice model that is derived from random utility maximization under mild regularity conditions. We consider the nonparametric maximum likelihood estimator and show that the average conditional choice probability converges at rate root N where N is the sample size. This is the first result on the rate of convergence of the Heckman-Singer method and Kiefer and Wolfowitz' (1956) nonparametric maximum likelihood estimator. We achieve this rate using a simple Riemann integral for the case of one regressor and a neural network for the case of multiple regressors. This neural network is a mixture distribution that uses S points. The bias of our procedure is $S^{-\alpha}$ for arbitrary large alpha. We relate this finding to a long-standing economic puzzle that, in a variety of models, the number of points or "types" that the empirical researchers find is small, especially in cross-section data. Further, we show that our convergence result does not require the random coefficient distribution in the logit model to be identified. This is a useful feature as this distribution, even if identified, can only be estimated at rate that is at most $N^{0.25}$.

All in-person seminars will be held in the Social and Behavioral Sciences Building, Room N603. For additional information, contact the seminar organizers: Profs. Jonathan Becker and Lorenz Ekerdt. Visit our webpage for additional information: stonybrook.edu/economics.

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