

Computer Science Seminar Series

“Algorithmic Decision-Making using Panel Data”

Keegan Harris, M.S.

**Ungar Building, Room UB305 (3rd Floor), Coral Gables Campus****Wednesday 8/30/2023 at 5PM** | Zoom: <https://miami.zoom.us/j/97116570518>

Refreshments at 4PM

Abstract

In panel data settings, a learner observes repeated, noisy measurements of units under different interventions over time. Examples of units include patients, customers, and subpopulations; example treatments are medical treatments, discounts, and socioeconomic policies. In theory, the learner's objective is usually to design a procedure to estimate per-unit counterfactual outcomes under different interventions. However the end goal in practice is often to use counterfactual estimates to assign interventions to units in order to optimize some downstream objective; for example, maximizing life expectancy or revenue, or minimizing unemployment. In this talk, I will overview two of the challenges which come with making the shift from counterfactual estimation to algorithmic decision-making using panel data (adaptive data collection and unit incentives), and I will show how to account for these factors in a principled way. This talk is based in part on two recent preprints:

<https://arxiv.org/pdf/2307.01357.pdf>, <https://arxiv.org/pdf/2211.14236.pdf>.

Bio

Keegan Harris is a 4th year Ph.D. Student in the School of Computer Science at Carnegie Mellon University, where he is advised by Nina Balcan and Steven Wu, and supported by the NDSEG fellowship. His research interests include machine learning, algorithmic game theory, econometrics, and their various intersections. This summer, he was a research intern with the Economics & Computation group at Microsoft Research Lab - New England, where he was hosted by Alex Slivkins. Previously, Keegan received a M.S. in Machine Learning from Carnegie Mellon University, a B.S. in Computer Science from Penn State University, and a B.S. in Physics from Penn State University. For more information visit: <https://keeganharris.github.io/>.