



THE UNIVERSITY OF  
CHICAGO

DEPARTMENT OF STATISTICS

## Statistics Colloquium

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*Data Science Institute/Computer Science/Statistics Joint Seminar*

YU-XIANG WANG

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University of California, Santa Barbara

“Three Challenges in Responsible ML and How to Overcome Them, Provably”

MONDAY, March 7, 2022, at 4:30 PM

In-Person: (John Crerar Library, Room 390) and

Remote: Watch via [Live Stream](#) or Zoom

(Zoom info sent via email announcement.)

### ABSTRACT

The rise of machine learning (ML) and deep learning has revolutionized almost every aspect of our daily life. Learning-based methods are now widely used in financial, medical, and legal applications for tasks involving not only predictions, but also decision making, often in adversarial, non-stationary, and strategic environments, and sometimes relying on sensitive data. Classical statistical learning theory does not cover these new settings, which motivates us to develop new theories and algorithms for applying ML responsibly in these emerging applications.

In this talk, I will cover recent advances from that address these challenges with strong theoretical guarantees. Topics include new technical results in offline reinforcement learning, adaptive online learning and differential privacy as well as their promise in real-life applications.

Bio: Yu-Xiang Wang is the Eugene Aas Assistant Professor of Computer Science at UCSB. He runs the Statistical Machine Learning lab and co-founded the UCSB Center for Responsible Machine Learning. Prior to joining UCSB, he was a scientist with Amazon Web Services’s AI research lab in Palo Alto, CA. Yu-Xiang received his PhD in Statistics and Machine Learning in 2017 from Carnegie Mellon University (CMU). Yu-Xiang’s research interests include statistical theory and methodology, differential privacy, reinforcement learning, online learning and deep learning. His work had been supported by an NSF CAREER Award, Amazon ML Research Award, Google Research Scholar Award, Adobe Data Science Research Award and had received paper awards from KDD’15, WSDM’16, AISTATS’19 and COLT’21.