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School of Computing and Augmented Intelligence

Arizona State University

Date: Friday, Feb 18, 2022

Time: 1 - 1:50 pm

Location: L2 D2

Zoom Meeting ID: 970 7656 5407

Password: 477211

Scaling up Principled Aggregation

by Melding Socio-theoretical Insights and Optimization

Abstract: Over the last two decades, there has been a growing interest in the development of principled mechanisms for aggregating subjective data (e.g., preferences) into socially desirable choices, helping to propel the new interdisciplinary field of computational social choice. Advancements in this field are said to provide a counterbalance against "black-box" decision-making technologies, and they have led to improved outcomes in business, technology, and various other domains. Yet, real-world implementation of the more robust methodologies—in the sense that their outputs guarantee desirable socio-theoretical properties—remains severely limited due to a combination of incompatible assumptions and computational difficulties.

This talk will discuss recent work that melds novel socio-theoretical insights and optimization techniques to scale the applicability of principled aggregation methods for modern contexts, including crowdsourcing and human computation, where input data that may be high-dimensional, incomplete, and/or contain ties. The presented contributions include new axiomatic measures, social choice properties, mathematical models, and discrete optimization algorithms. These are evaluated on synthetic and real-world data extracted from various applications.

Biography: Adolfo R. Escobedo is an assistant professor in the School of Computing and Augmented Intelligence at Arizona State University. He received a Ph.D. in Industrial & Systems Engineering from Texas A&M University in 2016 and a B.A. in Mathematics from California State University, Los Angeles in 2009. His active research areas include computational social choice, crowdsourcing, computational linear algebra, and sustainable infrastructure development. In conjunction with Erick Moreno-Centeno, Adolfo received an Honorable Mention in the 2015 INFORMS Junior Faculty Interest Group paper competition as a student at Texas A&M based on his work on roundoff error-free algorithms for optimization. He is also co-winner of the 2021 INFORMS Computing Society Prize.