

Fair Resource Allocation: From Theory to Practice

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Abstract

Fairness in resource allocation is a fundamental problem that arises in a variety of domains, including healthcare, hiring, admissions, infrastructure development, recommendation systems, disaster management, and emergency response. Different ethical theories provide distinct lenses through which fairness can be understood and operationalized. In this talk, I will discuss (i) what it means to be fair in static and dynamic settings, depending on the application context, (ii) theoretical models for understanding noise and bias in data, and (iii) connections with law and policy. Through some of my recent work, I will discuss challenges related to differences in fairness objectives (e.g., how to find some “good” enough solutions across all objectives), navigating the space of human-AI collaboration (e.g., what should AI optimize?), and deviations from theoretical assumptions (e.g., of clean group memberships, discrimination models, etc).

This talk is based on joint works with Jai Moondra, Mohit Singh, Cheol Woo Kim, Shresth Verma, Madeleine Pollack, Ling kai Kong, and Milind Tambe [GMS23, GMS25, KMV⁺25].

References

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