CoCo Seminar Series
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Fairness-Efficiency Tradeoffs in Collaborative Network Resource Allocation

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8:30-9:30am Engineering Building H-9
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This talk presents the fairness-efficiency tradeoff in resource allocation in the collaborative networks (CNs) of enterprises. In any CN, the collaboration process often leads to a dilemma: the need to choose between fairness and efficiency. The objective of this talk is to build an accurate model that overcomes this dilemma through fair and efficient network resource allocation among the enterprises. In this research, two concepts are utilized to distinguish the tradeoff between fairness and efficiency in sharing protocols: 1) the generalized α-fair concept and 2) Jain's fairness index. Furthermore, this study attempts to find the optimal weights of both fairness and efficiency while maintaining the Pareto efficiency. The model's performance is studied by involving conceptual homogeneous and heterogeneous networks based on the enterprise capacity. The experimental results indicate that a balance between efficiency and fairness in CNs is essential to forming a sustainable network and obtaining mutual benefits among the enterprises. The outcomes of this study demonstrate that incorporating a certain level of efficiency results in a fair network resource allocation being obtained when forming a network.

Ibrahim Yilmaz is a Ph.D. candidate in Industrial and Systems Engineering at Binghamton University. His research interests include System Optimization, Distributed Decision Making and Collaborative Network.

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