

Research Highlight: Dynamic directed random matching

Work of Professor SUN Yeneng

When many agents are matched without coordination, it is reasonable to assume that the individual agents search independently for their partners. Independent random matching for a continuum of agents has been widely used in the economics literature. However, there had actually been no demonstration of the existence and some aggregate properties of such search models. Based on the framework of Fubini extension, the issues for the case of non-directed search have been resolved in two earlier papers by Prof Darrell Duffie of Stanford University and Prof Sun.

In many models, agents are also motivated to focus their searches toward those types of counterparties that offer greater gains from interaction. Independent directed random matching is the key to achieving tractability in those models. Prof Sun and his coauthors Darrell Duffie and QIAO Lei (Ph.D from NUS in Mathematics in 2016) demonstrated in their 2018 paper the existence and properties of general models of independent directed search, thus placing a complete mathematical foundation under the directed-search models assumed in the prior literature.

References:

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