

Efficient marketplace optimization to improve workplace productivity

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Technology driven solutions are at the heart of individual as well as organizational productivity, particularly with the current trend of hybrid workplaces. In particular, having efficient access to experts (both within and outside the workplace) to answer questions that arise at a workplace can significantly increase productivity. Similarly, being able to find contacts within an organization efficiently, particularly for routing questions or predicting message recipients would significantly improve productivity for employees of particularly large organizations.

While many of these are well understood as recommendation system problems, in recent times, we have seen significant value in framing them as marketplace optimization problems. In particular, as in any marketplace, we consider optimization for value provided both to the consumer (employee) as well as the producer (expert/provider of the service). Many problems, like matching mentors with mentees, finding experts to answer questions, finding optimal people to message within the organization to provide a particular service all fall successively in this framework. As a result of framing these problems as marketplace optimization, we simultaneously consider utilities and value provided to both the consumers as well as the producers. Some notions of value provided to producers include acknowledging more people as experts, increasing supply of experts to answer questions and meeting requirements. Therefore training models in these frameworks would need to consider a combination of immediate viewer objectives, long term viewer objectives as well as creator objectives and trade them off appropriately. This is often set up in the form of a large-scale multi-objective optimization problem. The measurement of such value relies on setting up efficient network A/B testing frameworks to be able to understand the effects of any intervention on both sides of the marketplace. These can also be generalized to provide value to general creator ecosystems, which include nurturing and identifying fledgling creators (experts) so as to provide a steady supply of answers/experts to any system.

Ankan Saha is a Senior Staff Applied Researcher at LinkedIn. He is a tech-lead in the Growth AI org at LinkedIn, overseeing problems in the space of Network Edge Recommendations (People You may Know (PYMK)/Entity-Follow recommendations) as well as various AI problems bolstering the Company Pages ecosystem at LinkedIn. He has designed multiple large scale AI systems providing candidate generation, ranking as well as optimizing for relevant

problem-dependent downstream utilities. He has also worked on AI problems for home-feed, job-search, content recommendations, as well as building out the first optimization solver at LinkedIn. He obtained his PhD from University of Chicago on Optimization methods in Machine Learning.

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