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Sirui Wang* (siruiw@wharton.upenn.edu). *Identifying Communities of Specialized Knowledge in a Tech Economy*. Preliminary report.

In the past decade, New York City has seen tremendous growth in its technology sector, making it a prominent player in the world of technology today. The division of labor in such a tech economy can be attributed to specialization of knowledge and skills within the community. We study this organization of knowledge by building dynamic social networks with data from a large online group focused on tech-based startups in the New York area. With a given network, the problem of community detection can be cast as a constrained integer linear program that optimizes network modularity. Using the Louvain method to approximate sub-communities in the overall tech economy, we find that the technology sector in New York is not only growing in size, but also in knowledge diversity, with the period of greatest change at around the end of the 2008 financial crisis. (Received September 16, 2017)