

## *ML@GT Seminar: Lily Hu*

Monday, April 16, 2018  
2-3pm in ISYE main, room 126

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Lily Hu is a PhD candidate in Applied Mathematics, working in the Computer Science department at Harvard University under Professor Yiling Chen where she studies algorithmic fairness, machine learning, and ethics in artificial intelligence. Broadly, her academic interests include machine learning in economic environments, network theory, artificial intelligence, distributive justice, and thinking beyond utilitarianism. Her current time is divided between economics/computer science-related research and philosophy/ethics work.

Please RSVP [HERE](#) for the talk as there will be a small reception following

**Title:** A short-term intervention for long-term fairness in the labor market

**Abstract:** The persistence of racial inequality in the U.S. labor market against a general backdrop of formal equality of opportunity is a troubling phenomenon that has significant ramifications on the design of hiring policies. In this talk, I will show that current group disparate outcomes may be immovable even when hiring decisions are bound by an input-output notion of "individual fairness." Instead, I'll present a dynamic reputational model of the labor market that illustrates the reinforcing nature of asymmetric outcomes resulting from groups' divergent accesses to resources and as a result, investment choices. To address these disparities, we adopt a dual labor market composed of a Temporary Labor Market (TLM), in which firms' hiring strategies are constrained to ensure statistical parity of workers granted entry into the pipeline, and a Permanent Labor Market (PLM), in which firms hire top performers as desired. Individual worker reputations produce externalities for their group; the corresponding feedback loop raises the collective reputation of the initially disadvantaged group via a TLM fairness intervention that need not be permanent. I'll show that such a restriction on hiring practices induces an equilibrium that, under particular market conditions, Pareto-dominates those arising from strategies that statistically discriminate or employ a "group-blind" criterion. The enduring nature of equilibria that are both inequitable and Pareto suboptimal suggests that fairness interventions beyond procedural checks of hiring decisions will be of critical importance in a world where machines play a greater role in the employment process.