

# Graduate Seminar

Department of  
Economics and Finance

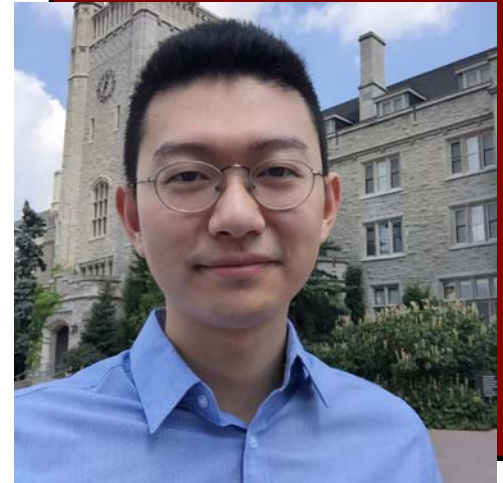
College of Business  
and Economics

## Yibin Li

MA Candidate

Supervisors: Asha Sadanand

Second Reader: Rene Kirkegaard



### **Simultaneous Proposal Algorithm and Signaling Model in Two-sided Matching Market**

Deferred Acceptance algorithm was established by Gale and Shapley (1962), which proved the existence of stable matchings in two-sided one-to-one matching market such as a marriage market. The marriage proposals in DA algorithm are only one-way, for example, from men to women (or from women to men). It can be shown that the proposing side always gets better results. We show the reduction of total cost of matching by allowing both sides proposing at the same time. In chapter 1, we provide a “Simultaneous Proposal” algorithm in this paper to solve the two-sided simultaneous proposing matching problem under a market with a planner. Then we discuss how to use Nash Propagation algorithm (Kearns 2001) to solve the matching problem without a planner. In chapter 2, we include incomplete information and provide an signaling model in the paper to explain the two-sided matching market and help agents to form good matchings.

**Date: Tuesday August 8th 2017**

**Time: 2:00pm**

**Room: Mackinnon 720**

