# Curriculum Vitae of Lu Wang

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## EDUCATION

*Rotman School of Management, University of Toronto* 2012-present
Ph.D. Candidate in Operations Management

*Faculty of Science, Vrije Universiteit Amsterdam* 2011-2012
Visiting Student

*School of Mathematics and Statistics, Wuhan University* 2010-2012
M.Sc. in Applied Mathematics

*School of Mathematics and Physics, China University of Geosciences* 2006-2010
B.S. in Mathematics and Applied Mathematics

## RESEARCH INTERESTS

Innovation management, economics of information technology industry, strategic behavior in queueing systems, and interface between marketing and operations management.

## WORKING PAPERS

1. Simultaneous vs. Sequential Crowdsourcing Contests, with Ming Hu, submitted to *Management Science* (*Job Market Paper*)
2. Created Unequal: Bundling with Crowdsourced Products, with Ming Hu (*In Preparation*)
3. To Synchronize the Travelling and Waiting Processes: Customer Strategy in Online Reservation System, with Opher Baron and Oded Berman (*In Preparation*)

## TEACHING EXPERIENCES

- Teaching Assistant, Rotman School of Management, University of Toronto
  RSM 1382 (MBA Core) *Statistics* Winter 2014, Winter 2015
  RSM 2407 (MBA Core) *Service Operations Management* Summer 2015
  RSM 1340 (MBA Core) *Operations Management* Fall 2016
  RSM 370 (Commerce Undergraduate) *Supply Chain Management* Fall 2014
  RSM 270 (Commerce Undergraduate) *Operations Management* Fall 2013, Winter 2013, Winter 2014 - Fall 2015, Winter 2015, Summer 2015
- Teaching Assistant, School of Mathematics and Statistics, Wuhan University
  *Calculus* (Undergraduate) Mar.-Jun. 2011
  *Linear Algebra* (Undergraduate) Sept.-Dec. 2010

## CONFERENCE PRESENTATIONS

- Simultaneous vs. Sequential Crowdsourcing Contests
  *INFORMS Annual Meeting*, Philadelphia, USA Nov. 2015
  *CORS Annual Conference*, Montreal, Canada Jun. 2015
  *CORS Annual Conference*, Calgary, Canada Jun. 2016
- Created Unequal: Bundling with Crowdsourced Products
  *CORS Annual Conference*, Calgary, Canada Jun. 2016

## HONORS AND AWARDS

Rotman Doctoral Fellowship, University of Toronto 2012-2017
School of Graduate Studies Conference Grant, University of Toronto 2015
Graduate Fellowship, Wuhan University 2010-2012
University Undergraduate Scholarship, China University of Geosciences 2006-2012

## REFERENCES


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|---|---|---|
| Professor Ming Hu | Professor Opher Baron | Professor Oded Berman |
| Rotman School of Management | Rotman School of Management | Rotman School of Management |
| University of Toronto | University of Toronto | University of Toronto |
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## ABSTRACTS OF WORKING PAPERS

- *Simultaneous vs. Sequential Crowdsourcing Contests*

  In a crowdsourcing contest, innovation is outsourced by a firm to an open crowd that compete in generating innovative solutions. Given that the projects typically consist of multiple attributes, how should the firm optimally design a crowdsourcing contest for such a project? We consider two alternative mechanisms. One is a simultaneous contest, where the best solution is chosen from the aggregate solutions simultaneously submitted by all contestants. The other is multiple sequential sub-contests, with each dedicated to one attribute and the contestants asked to build upon the best work in progress from previous sub-contests. It is intuitive that the sequential contest has the advantage of potentially creating a "cooperative" final solution contributed by different contestants. However, somewhat surprisingly, we show that the sequential contest may reduce the incentive for the crowd to exert effort. The comparison of the expected *best* performances in the two contests depends on the project's characteristics. For example, if the project is relatively difficult (resp., easy), the sequential (resp., simultaneous) contest is optimal. If the number of contestants is large enough (resp., small enough), the sequential (resp., simultaneous) contest is optimal. When the firm optimally allocates the total prize to sub-contests, if the difficulty is sufficiently different across attributes, the sequential contest performs better by motivating contestants to make more efforts than the simultaneous contest. Otherwise, the simultaneous contest may perform better. We also consider the expected *average* performance as an alternative criterion and extend the model to account for contestants with heterogeneous cost functions and starting points.

- *Created Unequal: Bundling with Crowdsourced Products*

  As consumer buying habits are trending toward more simple and hassle-free experiences, more and more companies are jumping into the innovative business model of subscription services. Subscription providers such as Spotify, Netflix and OneGo (an all-you-can-fly subscription service provider) crowdsource products/services from many vendors and bundle them for the price of one. The collected subscription fees for the bundle then are allocated according to the realized contributions by each crowdsourced product. However, this allocation scheme may create incentive incompatibility for vendors, given their options of not joining the bundle. We examine the incentive compatibility of different parties under various bundling strategies. In particular, we show that the popular product vendors prefer the pure bundling subscription, while the niche product vendors tend to favor the partial mixed bundling with their own product sold separately in addition to the bundle.

- *To Synchronize the Travelling and Waiting Processes: Customer Strategy in Online Reservation System*

  The online reservation system allows customers to join a queue and wait for service without being on site. Some platforms have been designed to collect the information of restaurants and show the real-time congestion levels (e.g., Nowait). We consider a model in which customers must travel from their location to the service area and incur a travelling cost. When customers intend to book service online, they are informed about their positions in the queue at the time of booking, so that they make their decision whether to join the queue taking into account the travelling time and expected waiting time upon their arrival at the service location. Intuitively, the more time customers spend in travelling, the less time they have to wait in line. Therefore, there exists a tradeoff between the travelling cost and queue waiting cost. We show that if the travelling cost is sufficiently large, the attraction of the service is decreasing in the distance between the customer and service locations; and if the travelling cost is negligible, the attraction of the service is increasing in the distance. With those customer behaviors, the optimal location strategy of a firm heavily relies on the conditions of the travelling and benefit of the service.