WEBEIS 2019 Program Schedule

All sessions are held in 3M Auditorium, Carlson School of Management (321 19th Ave S., Minneapolis, MN 55455: 1st floor)

7.00am – 8.00am Workshop Registration & Breakfast

8.00am – 8.30am Opening Note: Welcome
Alok Gupta (Associate Dean, Carlson School of Management, EIC of ISR)

8.30am–10.00am Session 1: Experiment Design - Issues and Considerations
Paper 1: Consumer behavior and firm targeting after the European General Data Protection Regulation
Authors: Miguel Godinho de Matos and Idris Adjerid
Discussant: Veronica Marotta

Paper 2: An Empirical Analysis of p-hacking in E-commerce Experiments
Authors: Alex P. Miller and Kartik Hosanagar
Discussant: Edward McFowland III

Paper 3: Limiting Bias From Test-Control Interference in Online Marketplace Experiments
Authors: David Holtz and Sinan Aral
Discussant: Rajiv Mukerjee

10.15am – 11.45pm Session 2: Pricing and Incentives
Paper 1: Testing the Limits: Effect of Flexibility on Consumption of Services
Authors: Rajiv Mukerjee, Sreekumar Bhaskaran, and Sanjiv Erat
Discussant: Pallab Sanyal

Paper 2: The Role of Peer Symbolic Awards on User-Generated Content Creativity: Evidence from a Randomized Field Experiment
Authors: Gord Burtch, Qinglai He, Yili Hong, and Dokyun Lee
Discussant: Mike Zhao

Authors: Genevieve Bassellier and Jui Rampasad
Discussant: Laura Brandimarte

11.45am – 12.30pm Panel: Academia Meets Industry – Collaboration between Two Worlds
Panelists: Ravi Bapna (UMN), Mike Martiny (General Mills), Tianshu Sun (USC), Zee Do (Federal Reserve Bank of Minneapolis)
Host/Moderator: Jason Chan (UMN)

12.30pm – 1.30pm Lunch

1.45pm – 3.15pm Session 3: Networks and Platform Design
Paper 1: Overcoming Free-Riding in User-Generated Content Platforms: Punishments and Rewards for Individuals and Groups
Authors: Matthew Hashim and Jesse Bockstedt
Discussant: Keehyung Kim

Paper 2: Content Growth and Attention Contagion in Information Networks: A Natural Experiment on Wikipedia
Authors: Kai Zhu, Dylan Walker, and Lev Muchnik
Discussant: Grace Gu

Paper 3: Trust and Disintermediation: Evidence from an Online Freelance Marketplace
Authors: Grace Gu and Feng Zhu
Discussant: Dave Holtz

3.15pm – 3.45pm  
**Group Photo + Tea Break**

3.45pm – 4.45pm  
**Session 4: Social Media and User-Generated Content**
Paper 1: Expressed Anger in Online Reviews: Unhelpful but Persuasive?
Authors: Dezhi Yin, Samuel D. Bond, and Han Zhang
Discussant: Shunyang Lee

Paper 2: Title: Open Voice or Private Message? The Hidden Tug-of-War on Social Media Customer Service
Authors: He Shu, Shunyang Lee and Huaxia Rui
Discussant: Nina Huang

4.45pm – 5.00pm  
**Closing Remarks + Sneak Peek for WEBEIS 2020**
Jason Chan and Tianshu Sun

5.00pm – 5.30pm  
**“River-Crossing”**
Walk over to the dinner place, mini-tour of UMN Campus
Location: Campus Club, Coffman Memorial Union Suite 403
300 Washington Ave SE, Minneapolis MN 55455

5.30pm – 7.00pm  
**Reception & Dinner**
WEBEIS 2019 Paper Abstracts

Session 1: Experiment Design - Issues and Considerations (8.30a.m-10.00am)

Authors: Miguel Godinho de Matos and Idris Adjerid
Title: Consumer behavior and firm targeting after the European General Data Protection Regulation
Discussant: Veronica Marotta

Abstract
The recent applicability of the General Data Protection Regulation (GDPR) represents a dramatic shift in global privacy regulation. In this manuscript, we examine the impact of GDPR's enhanced consent requirements on consumer opt-in behavior and firm targeting after consent is solicited. Utilizing an experiment at a large telecommunications provider in Europe, we find that opt-in for different data types and uses increased once GDPR-compliant consent was elicited. We also find that firm targeting, revenue, and lock-in increased after consumer consent was elicited. Early evidence suggests that these gains to the firm emerged because of the ability to identify consumers who were amenable to more intensive and tailored marketing approaches.

Authors: Alex P. Miller and Kartik Hosanagar
Title: An Empirical Analysis of p-hacking in E-commerce Experiments
Discussant: Edward McFowland III

Abstract
E-commerce managers are increasingly turning to randomized controlled trials—known colloquially as A/B testing—to make business-critical marketing and design decisions about their websites. However, just as this practice is starting to reach widespread adoption, the problem of continuous monitoring—in which experimenters actively watch the results of their experiments as new data arrive—has emerged as a prevalent concern among industry professionals. If experimenters watch their data in real time and stop experiments once their p-values reach a given significance threshold, this behavior (a form of so-called p-hacking) is known to inflate the false positive rate, potentially causing managers to make costly mistakes. In this paper, we attempt to study the prevalence of this form of p-hacking in a large sample of 2,471 experiments from 261 e-commerce firms conducted on a popular A/B testing platform. We hypothesize that such behavior would lead to a discontinuity in the distribution of p-values near the 5% significance threshold and apply several statistical tests to detect such a discontinuity. Contrary to expectations, our empirical results across several specifications provide no evidence for p-hacking in our sample of experiments. We also develop a set of simulated counterfactuals from our data to demonstrate that, if a modest effect of p-hacking did exist, our statistical methodology would have the power to detect it at our current sample size. Despite finding a null result, this research makes a valuable contribution by presenting both a novel method for detecting discontinuities in density functions and empirical evidence that informs our understanding of how firms use modern testing platforms.
Abstract

Many internet firms use A/B tests to make product decisions. When running an A/B test, the typical objective is to measure the average treatment effect (ATE), i.e. the difference between the average outcome in the counterfactual situation where 100% of users are exposed to the treatment and the average outcome in the status quo situation (in which 100% of users are exposed to the control). However, a simple difference-in-means estimator will give a biased estimate of the ATE when outcomes of units in the control depend on the behavior or outcomes of units in the treatment - a case referred to in this work as test-control interference. Previous work has found evidence of bias due to test-control interference in online marketplace experiments. Using a simulation built on top of scraped Airbnb data, this paper considers the use of experiment designs and ATE estimators from the network interference literature for online marketplace experimentation. We first model the marketplace as a network in which an edge exists between two sellers if their goods substitute for one another.

We then create an agent-based simulation to model seller outcomes, both under the status quo and when subjected to “treatments” that force hosts to lower their price. We then use the same simulation framework to approximate ATE distributions obtained when various network experiment design and analysis techniques are used. We find that graph cluster randomization leads to bias reductions of as much as 62%. Unfortunately, the variance of ATE estimators also increases significantly. Replacing the simple difference-in-means estimator with more sophisticated ATE estimators can lead to mixed results. While some methods (i.e., exposure models) provide (small) additional reductions in bias and small reductions in variance, others (i.e., the Hajek estimator for the ATE) lead to increased bias and variance. Although further work is needed, current results suggest that experiment design and analysis techniques from the network experimentation literature are promising tools for reducing bias due to test-control interference in marketplace experiments.

Session 2: Pricing and Incentives (10.15am – 11.45pm)

Authors: Rajiv Mukerjee, Sreekumar Bhaskaran, and Sanjiv Erat
Title: Testing the Limits: Effect of Flexibility on Consumption of Services.
Discussant: Pallab Sanyal

Abstract

In this paper, we experimentally investigate how flexibility in consumption interacts with the actual usage of a service by consumers. Subsequently, we study a firm’s pricing and capacity planning decision under the presence of these effects. The results have interesting implications in industries where managing congestion is an important consideration.

Authors: Gord Burtch, Qinglai He, Yili Hong, and Dokyun Lee
Title: The Role of Peer Symbolic Awards on User-Generated Content Creativity: Evidence from a Randomized Field Experiment
Discussant: Mike Zhao

Abstract
User-generated content platforms focus on providing a steady stream of original and creative content to drive user acquisition, user retention, and monetization. Yet, despite its importance, there is a dearth of work exploring the role of non-monetary interventions in driving UGC content creation behaviors. In this work, we consider the effects of symbolic awards offered by peers. Peer awards are unique for two reasons. First, assignees and recipients typically share equal status in the community or market. Second, it has high randomness because no single unifying standard exists for evaluating merit. We address the following formal research questions: What effect do peer symbolic awards have on the quantity of UGC production? What effect do peer symbolic awards have on the content of UGC (specifically, content similarity as a proxy for creativity)? To evaluate our questions, we conduct a large-scale field experiment on Reddit, one of the biggest social news aggregation and discussion platforms in the world. Leveraging the plentiful textual content and its innovative peer symbolic award, Reddit Gold, we have randomly gilded approximately 900 posts on the Reddit anonymously over the course of two months. we collect users’ behavioral trace data and posts via Reddit’s API. Our results suggest that users are more likely to generate content once their posts are granted with the peer symbolic award. In particular, more content is created on the community where users were awarded. Moreover, awarded users create more lengthy content than before, which indicates the increases of their effort and UGC production in their post-experiment posts. Interestingly, we employ multiple text-mining techniques and found that users are more likely to generate similar content as their previous post after they received the peer symbolic award. Based on this result, we surmise that peer symbolic awards may hinder creativity of the content.

Authors: Genevieve Bassellier and Jui Rampasad

Title: Heterogeneous Effects in the Impact of Price Anchoring on Payment for Digital Goods
Discussant: Laura Brandimarte

Abstract
This study examines the role of moderators on the impact of reference prices (serving as price anchors) on consumers’ willingness-to-pay for digital goods. The context of digital goods is important in that individuals are able to consume such goods for free. As such, this “public good” nature of digital goods – in that they fulfill the characteristics of being non-rival and non-exclusive (Hashim et al. 2014) – suggests that it is becoming increasingly important to understand how to influence payment for these goods. In this particular study, we focus on exploring moderators that reflect both consumer characteristics as well as characteristics of the digital good creator that can play a role in the relationship between reference prices and willingness-to-pay. For example, does a consumer’s current emotional state impact how influential the reference price is in determining his willingness-to-pay (WTP)?

We suggest that individual characteristics – both demographic and emotional – may play a role in how effective anchors are. Furnham and Boo (2010) suggest that this means that susceptibility
to the anchoring effect can vary by individual characteristics, citing literature that has shown the moderating impact of mood (Bodenhausen et al. 2000, Englich and Soder 2009) and expertise. We study these moderating impacts of the anchoring effect in individuals’ payments for a specific digital good, music. The context of music allows us to observe not only the heterogeneity in the anchoring effect based on customer characteristics, but also the heterogeneity in the anchoring effect based on artist characteristics. Hence, we go beyond the susceptibility to the anchoring effect with regards to the consumer’s individual characteristics. We conduct a lab experiment in a mock digital music platform that we have created and recruited respondents from Amazon Mechanical Turk. We conduct t-tests and a Tobit regression to understand the relationship between the price anchor, our moderating effects of interest, and WTP.

Lunch + Panel: Academia Meets Industry –Collaboration Between Two Worlds
Panelists: Ravi Bapna (UMN), Mike Martiny (General Mills), Tom Moore (Medtronic), Tianshu Sun (USC)
Host/Moderator: Jason Chan (UMN)

Session 3: Networks and Platform Design (1.45pm-3.15pm)
Authors: Matthew Hashim and Jesse Bockstedt
Title: Overcoming Free-Riding in User-Generated Content Platforms: Punishments and Rewards for Individuals and Groups
Discussant: Keehyung Kim

Abstract
User-generated content (UGC) platforms rely on user contributions to create value and frequently suffer from problematic free-riding. Although many platforms implement interventions, an open empirical question remains as to which interventions result in the best outcomes. As online hubs of collaboration, UGC platforms are well-suited to applying exogenous incentives for motivating participation à la a theoretical social planner. We propose that UGC platforms could use rewards or punishments at individual or group levels to mitigate problematic free-riding. The free-rider problem is typically studied using a public goods framework, thus we conduct a lab experiment using a public goods game to explore interventions applied to individuals or groups. Our results highlight interesting insights and non-obvious consequences. Punishing only the worst contributor results in a significant increase in contributions for the worst contributor and marginal increases in contributions for the group. Rewarding only the highest contributor results in a significant decrease in contributions for everyone in the group. Punishing the group results in an overall decrease in contributions, whereas rewarding the group results in an overall increase in contributions. Our research offers insights for the design and implementation of incentive schemes in UGC platforms facing a free-rider problem.

Authors: Kai Zhu, Dylan Walker, and Lev Muchnik
Title: Content Growth and Attention Contagion in Information Networks: A Natural Experiment on Wikipedia
Discussant: Grace Gu

Abstract
Online collaborative systems have fundamentally changed the way knowledge is produced, disseminated and consumed. In these systems, contributions arise organically with little to no central governance. While such decentralization provides many benefits, a lack of broad oversight and coordination can leave questions of information poverty and skewness to the mercy of the system’s natural dynamics. Unfortunately, we still lack a basic understanding of the causal dynamics at play in these systems and specifically how contribution and attention interact and propagate through the information network. We leverage a large-scale natural experiment to study how exogenous content contributions to a Wikipedia article causally affect the attention it attracts and how that attention spills over to other articles in the network. Results reveal that exogenously added content leads to significant, substantial and long-term increases in both content consumption (12%, on average) and subsequent contributions (3.6 more edits and 2 more unique editors over a 6-month period). Furthermore, we find significant attention spillover to downstream hyperlinked articles (as much as 22%). Through both analytical estimation and empirically-informed simulation, we evaluate policies to harness this attention contagion to address the problem of information poverty and skewness. We find that harnessing attention contagion can lead to as much as a twofold increase in the total attention flow to clusters of disadvantaged articles. Our findings have important policy implications for online collaborative systems and information networks.

Authors: Grace Gu and Feng Zhu
Title: Trust and Disintermediation: Evidence from an Online Freelance Marketplace
Discussant: Dave Holtz

Abstract
As an intermediary improves trust between the two sides of its market to facilitate matching and transactions, it faces an increased risk of disintermediation: with sufficient trust, the two sides may circumvent the intermediary to avoid the intermediary’s fees. In this paper, we investigate the relationship between increased trust and disintermediation by leveraging a randomized control trial in an online freelance marketplace. We find that enhanced trust increases the likelihood of high-quality freelancers being hired. However, when the trust level is sufficiently high, it also increases disintermediation, which offsets the revenue gains from the increase in hiring high-quality freelancers. We also identify heterogeneity across clients and freelancers in their tendencies to disintermediate. We discuss strategies that intermediaries can use to mitigate the tension between trust building and disintermediation.

Session 4: Social Media and User-Generated Content (3.45pm-4.45pm)

Authors: Dezhi Yin, Samuel D. Bond, and Han Zhang
Title: Expressed Anger in Online Reviews: Unhelpful but Persuasive?
Discussant: Shunyang Lee
Abstract
The expression of anger is very common in online reviews but has received little prior attention. Extending the Emotion as Social Information theory, we propose that although expressions of anger in a negative online review tend to decrease reader perceptions of review helpfulness, the same expressions tend to increase the negative influence of the review on reader attitudes and decisions. Results from multiple laboratory experiments provide consistent support for our claims. By challenging the assumption that reviews deemed more “helpful” by consumers are ultimately more persuasive, our findings enhance current understanding of the interpersonal effects of emotion in online communication. They suggest important implications for the design of online review platforms and for service providers, marketers, and manufacturers faced with the task of managing online reviews.

Authors: He Shu, Shunyang Lee and Huaxia Rui
Title: Open Voice or Private Message? The Hidden Tug-of-War on Social Media Customer Service
Discussant: Nina Huang

Abstract
We study customers’ and firms’ preferences towards the choice between public and private channels for social media customer service. Using several natural experiments where the ease of private communication with treated firms is exogenously and significantly increased, we inferred that complaining customers prefer the public channel while some noncomplaining customers, especially those with small social media influence, prefer the private channel. On the contrary, through a randomized field experiment, we found that firms favor complaints received from the private channel, as is evidenced by the higher response rate and the lower response time compared with complaints received from the public channel. Such a prioritization is nonexistent for non-complaints. Therefore, firms, either wary of the risk of subjecting their customer service under public scrutiny or hoping to steer customer complaints away from the public space, prefer the private channel for complaints. The diverging preferences towards open voice and private message suggest a hidden tug-of-war between the traditional delivery of customer service featuring firm control and the emerging social media customer service featuring shared control and transparency. These findings have important implications to managers who should rethink their social media customer service strategies amid the recent trend of touting private social messaging channels.