

# YUANCHEN SU

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## EDUCATION

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- Carlson School of Management, University of Minnesota** *2023 (Expected)*  
Ph.D., Marketing  
Dissertation: “Gamification Incentives in Salesforce”  
Committee: George John (Advisor), Madhu Viswanathan, Irene Nahm, Byungyeon Kim, and Amil Petrin (Economics).
- University of Minnesota** *2017*  
M.S., Industrial & Systems Engineering  
M.S., Statistics (coursework)
- Tsinghua University** *2014*  
B.Eng., Automation

## RESEARCH INTERESTS

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**Substantive:** Salesforce, Retailing, Gamification, Incentive Design, Digital Marketing, Social Effects, Behavioral Economics, Sharing Economy  
**Methodology:** Econometrics, Structural Model, Game Theory, Optimization

## RESEARCH

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### Job Market Paper

- [1] **Yuanchen Su**, Madhu Viswanathan, and George John. “Social Motivations of Leaderboards: Theory and Evidence from Sales Contests.”
- Dissertation Essay 1
  - *IOEA 2022 Accessit Best Project Award*
  - *2022 ISBM Doctoral Dissertation Award, Finalist*
  - *AMS 2023 Mary Kay Dissertation Proposal Award, Runner-up*

### Working Papers

- [2] Guangwen Kong, Ankur Mani, and **Yuanchen Su**. “Referral, Learning and Inventory Decisions.” (Equal Authorship)
- *Reject & Resubmit at Management Science*
  - *2018 Net Institute Summer Award*
- [3] **Yuanchen Su**, Yi Zhu, and Anthony Dukes. “Social Listening with Competition: The Roles of Social Closeness and Extremity Bias.”
- *Preparing for submission*
- [4] Ruitong Wang and **Yuanchen Su**. “Search, Prominence, and Product Design.”
- *Preparing for submission*

### Work in Progress

- [1] **Yuanchen Su**, Madhu Viswanathan, and George John. “The Effect of Windfalls on Sales Performance.”
- Dissertation Essay 2
  - Manuscript in preparation

- [2]“AI-related Biases in B2B,” with Shantanu Dutta, Shankar Ganesan, Navid Mojir, Irene Nahm, Seshadri Tirunillai, conceptualizing stage.  
 • *Inaugural B2B Connect Research Symposium*
- [3]“Incentive Design under Subscription-based Sales,” with Xiaolin Li, analysis in progress.

## HONORS & AWARDS

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| AMS 2023 Mary Kay Dissertation Proposal Award, Runner-up            | 2023             |
| AMA Retail & Pricing SIG’s Best Doctoral Student Award              | 2023             |
| 2022 ISBM Doctoral Dissertation Award, Finalist                     | 2022             |
| Cargill Fellowship, Carlson School of Management, UMN               | 2022-2023        |
| Vaile Award for Research, Carlson School of Management, UMN         | 2022             |
| Lieberman Award for Teaching, Carlson School of Management, UMN     | 2022             |
| AMA-Sheth Foundation Doctoral Consortium Fellow                     | 2022             |
| Accessit Best Project Award, IOEA                                   | 2022             |
| Doctoral Dissertation Fellowship, Carlson School of Management, UMN | 2021-2022        |
| Haring Symposium Fellow (Presenter)                                 | 2021             |
| PhD Student Teaching Award, Carlson School of Management, UMN       | 2021             |
| ISMS Marketing Science PhD Consortium Fellow                        | 2020, 2023       |
| Haring Symposium Fellow (Discussant)                                | 2020             |
| Henrickson Fellowship, Carlson School of Management, UMN            | 2017, 2019       |
| Travel Fellowship, Carlson School of Management, UMN                | 2019, 2022, 2023 |
| Graduate School Fellowship, Carlson School of Management, UMN       | 2017-2021        |
| John N. Quiring Fellowship, School of Statistics, UMN               | 2016             |
| Student Travel Grant, School of Statistics, UMN                     | 2016             |
| ISyE Travel Grant, ISyE, UMN  | 2016             |

## CONFERENCE PRESENTATIONS

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| “Social Motivations of Leaderboards: Theory and Evidence from Sales Contests”    |          |
| - ISMS Marketing Science Conference, Miami                                       | Jun 2023 |
| - CSOM Applied Econ Seminar, UMN   | May 2023 |
| - 2023 AMS Annual Conference, New Orleans  | May 2023 |
| - 2023 George John Symposium, Austin   | May 2023 |
| - 2023 Marketing Analytics Symposium Sydney, Sydney                              | Feb 2023 |
| - 2023 AMA Winter Conference, Nashville  | Feb 2023 |
| - Marketing Dynamics Conference, Atlanta   | Nov 2022 |
| - ISMS Marketing Science Conference, Virtual                                     | Jun 2022 |
| - 19th Institutional and Organizational Economics Academy, Corse, France         | May 2022 |
| - Enhancing Sales Force Productivity Conference, Kansas University               | Apr 2022 |
| “Social Listening with Competition”  |          |
| - Haring Symposium, Indiana University   | Apr 2021 |
| - ISMS Marketing Science Conference, Virtual                                     | Jun 2020 |
| - MSOM Annual Meeting, Singapore   | Jul 2019 |
| - ISMS Marketing Science Conference, Rome, Italy                                 | Jun 2019 |
| “Referral, Learning and Inventory Decisions,” with Guangwen Kong and Ankur Mani. |          |
| - 13th POMS-HK International Conference, Virtual                                 | Jan 2023 |
| - MSOM Annual Meeting, Virtual   | Jun 2021 |
| - POMS 31th Annual Conference, Virtual   | Jun 2020 |
| - INFORMS Annual Meeting, Nashville  | Nov 2016 |

## TEACHING EXPERIENCE

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### University of Minnesota

Instructor, Principles of Marketing *Spring 2020, Spring 2021*  
- SRT: 5.4/6.0. Class size: 55 (partially online); SRT: 5.2/6.0. Class size: 77 (fully online)  
- PhD Student Teaching Award  
- Lieberman Award for Teaching  
Guest lecturer, Customer Relationship Management *Spring 2022, Spring 2023*

## TEACHING ASSISTANT

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### University of Minnesota

Buyer Behaviors (Undergrad) *Spring 2023*  
Principles of Marketing (Undergrad Honors) *Fall 2022*  
Marketing Analytics (MBA, Undergrad) *Fall 2019*  
Business Research Methods (MBA) *Spring 2019*  
Digital Marketing (Undergrad), Customer Analytics (MBA) *Spring 2019*  
Regression and Correlated Data (Undergrad) *Spring 2017*  
Statistics, Quality, and Reliability (Undergrad) *Fall 2016*  
Introduction to Statistical Analysis (Undergrad) *Summer 2016*

## SERVICES

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Marketing PhD Research Camp Organizer *2020, 2021*  
Marketing Weekly Brown Bag Organizer *2019 - 2020*

## AFFILIATIONS

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American Marketing Association  
The Institute for Operations Research and the Management Sciences  
Manufacturing & Service Operations Management  
Production and Operations Management Society

## SKILLS

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Matlab, R, Stata, Mathematica, Python, SQL

## SELECTED DOCTORAL COURSEWORK

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### Marketing

Inter-organizational Relations (George John)  
Quantitative Models I (Tony Cui)  
Quantitative Modeling II (Song Yao)  
Marketing Topics: Structural Modeling (Maria Ana Vitorino)  
Marketing Topics: Analytical Modeling (Yi Zhu)  
Marketing Topics: Pro-seminar (Mark Bergen)  
Consumer Behavior Special Topics: Methodology (Kathleen Vohs)  
Consumer Behavior Special Topics: Consumer Information Processing (Alison Xu)  
Consumer Behavior Special Topics: Self and Brands (Deborah John)  
Consumer Behavior Special Topics: Consumer Judgment and Decision Making (Akshay Rao)

### Economics

Microeconomics Theory I (Jan Werner)  
Microeconomics Theory II (Christopher Phelan)  
Microeconomics Theory III (Aldo Rustichini)

Microeconomics Theory IV (David Rahmen)  
Applied Econometrics I&II (Amil Petrin)  
Applied Econometrics III (Erzo Luttmmer)  
Applied Econometrics IV (Joseph Mullins)  
Industrial Organization I (Thomas Holmes)  
Industrial Organization II (Amil Petrin)  
Industrial Organization III (Joel Waldfogel)  
Noncooperative Game Theory (Aldo Rustichini)

### **Statistics, Machine Learning, and Operations Research**

Statistical Learning and Data Mining (Wei Pan and Xiaotong Shen)  
Advanced Algorithms and Data Structures (Carl Sturttivant)  
Advanced Regression Techniques (Yuhong Yang)  
Theory of Statistics I (Tiefeng Jiang)  
Theory of Statistics II (Lan Wang)  
Applied Statistical Methods (Birgit Grund)  
Statistical Computing (Adam Rothman)  
Time Series Analysis (Liliana Forzani)  
Stochastic Process and Queuing Systems (William Cooper)  
Linear Optimization (Zizhuo Wang)  
Nonlinear Optimization (Zhi-Quan Luo)  
Decision Analysis (Sang-Phil Kim)  
Production Planning and Inventory Control (Saif Benjaafar)  
Advanced Topics in OR: Revenue Management and Pricing (Zizhuo Wang)  
Advanced Topics in OR: Information and Incentives in Supply Chain (Guangwen Kong)  
Advanced Topics in OR: Network Science (Ankur Mani)

### **Mathematics**

Real Analysis I&II (Jack Conn)  
Measure Theory (Arnab Sen)

## **REFERENCES**

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**George John (Advisor)** johnx001@umn.edu  
General Mills/Paul S Gerot Chair and Professor of Marketing  
Carlson School of Management, University of Minnesota, Minneapolis, MN

**Madhu Viswanathan** madhu\_viswanathan@isb.edu  
Associate Professor of Marketing  
Indian School of Business, Hyderabad, India

**Mark Bergen** mbergen@umn.edu  
James D. Watkins Chair and Professor of Marketing  
Carlson School of Management, University of Minnesota, Minneapolis, MN

### **Social Motivations of Leaderboards: Theory and Evidence from Sales Contests (Dissertation Essay 1)**

**Abstract:** Sales contests have long been recognized as an effective tool to improve sales performance by motivating salespeople. However, existing research mainly focuses on how sales contests motivate participants through monetary motivation. This research aims to identify and explain the social effects that motivate participants in large-scale sales contests with leaderboards. We build a theoretical model to illustrate that leaderboards can heavily motivate agents who are leading (first-place loving effect) and who are lagging behind (last-place loathing effect) compared to agents in the middle. In addition, in the presence of social effects, leaderboards can play a significant role in improving the overall effort levels of agents when these social effects are salient. Using a set of real-world contests with leaderboards with each contest involving hundreds of participants and employing an identical leaderboard design with multiple pages viewable to participants, we show the existence of first-place loving effect and last-place loathing effect, and find that page standings influence next-day sales in a “U”-shaped way, with participants on the first and last pages making more sales on a subsequent day compared to those on the middle pages, which is consistent with our model prediction. We then investigate the social motivation at different salience levels and find that agents who are closer to a page boundary when the social motivation is more salient make greater sales than their neighbors far away. Our research sheds light on the social incentives that motivate salespeople in real-world sales contests and provides practical implications for sales managers and firms looking to motivate their sales teams.

### **The Effect of Windfalls on Sales Performance (Dissertation Essay 2)**

**Abstract:** Different types of technology adopt randomized rewards as a tool to engage and motivate people. Salesforce also uses randomized rewards as a gamified incentive by giving salespeople a windfall of money. However, how windfall money influences salespeople’s performance is unclear, especially when the windfall amount is relatively small compared to their other income. Using data from a randomized awards program conducted at a car dealership, we find that a larger amount of windfall money can sometimes demotivate salespeople. The heterogeneity analysis shows that higher productivity attenuates this effect. In other words, salespeople with high productivity are less likely to be influenced by the windfall. With these findings, researchers and firms can better understand the mechanism of randomized rewards and improve the design of randomized rewards incentive programs.

### **Social Listening with Competition: The Roles of Social Closeness and Extremity Bias**

**Abstract:** Social listening is the practice of companies using social media data to understand consumers’ perceptions of brands in the market. By engaging in social listening, the marketer wants to better assess demand and improve pricing strategy. However, when competitors have accesses to the same data, the profitability of social listening is not obvious. We build a stylized model to conceptualize social listening and derive conditions on market conditions for which firms profitably engage in this practice in equilibrium. The conditions we derive pertain to key constructs of social media information. Our framework indicates that firms’ equilibrium price and profitability are moderated by the *social closeness* between influencers and followers, as well as the *extremity bias* associated with social media posting. We show that social listening can be a profitable equilibrium strategy, but only in the presence of extremity bias and only when social sharing generates a sufficient degree of market segmentation that aligns with brand preferences.

### **Referral, Learning and Inventory Decisions**

**Abstract:** With the proliferation of digital social networks, businesses increasingly use referral programs to increase market exposure and sales. When customers refer a product to others they naturally disclose their purchase decisions. Thus the referral process introduces a social learning effect. We study the interaction between social learning and referral program structure and examine their impact on a

firm's inventory decisions. We find that the presence of customers who lack knowledge of their own preferences introduces demand bias but social learning reduces this bias at the expense of increased demand variance. We characterize the optimal inventory levels for different numbers of referrals allowed by the firm and find that it is governed by the combination of *market exposure effect* and *demand substitution effect*. In a single referral program, the stock-out of one product can diminish the demand of the other product. In contrast, a multiple referral program allows a firm to achieve full market exposure but meanwhile increases the demand variance. Hence, the optimal referral program has to balance the trade-off between market exposure and demand variance, and thus allows either one or two referrals per customer.

### **Search, Prominence, and Product Design**

**Abstract:** Internet search traffic is heavily concentrated on a few selected prominent firms. The public worries that this phenomenon of search prominence can undermine competition, leading to a decline in product quality and thus harming consumers. However, little is known about the impact of search order on the firm's strategic choice of product quality and pricing. This research provides a game-theoretical framework to unpack the ramification of search prominence on the firm's choice of product quality and price, market competition, and consumer welfare. Surprisingly, we find that the prominent firm may deliberately downgrade its product quality even when the cost of production is the same for any quality level. In addition, prominence can be a liability rather than an asset such that more search traffic can sometimes reduce a firm's profit. Finally, we find that search prominence can be welfare-improving to consumers even though it lowers the average quality level in the market.