

Yanyan Li

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FIELDS

Topics: Consumer Privacy, Digital Advertising, Customer Analytics, Digital Platforms, Social Network

Methods: Structural Econometrics, Bayesian Statistics, Machine Learning, Causal Inference

EDUCATION

University of Southern California <i>Ph.D., Quantitative Marketing</i> Committee: Sha Yang (Chair), Max Wei, Nikhil Malik, Davide Proserpio, Samuel Goldberg	(expected) 2025
Columbia Business School <i>M.S., Quantitative Marketing</i>	2015
Renmin University of China <i>M.A., Ph.D., Business Administration</i>	2010
Nankai University <i>B.A., Business Administration</i>	2005

DISSERTATION

Essay 1 (Job Market Paper): “Understanding Privacy Invasion and Match Value of Targeted Advertising”
with Sha Yang.

- MSI Alden G. Clayton Doctoral Dissertation Proposal Competition, Honorable Mention
- USC Marshall Ph.D. Outstanding Researcher Award

Essay 2: “A Representative Sampling Method for Peer Encouragement Designs in Network Experiments”
with Sha Yang and Qing Liu.

- Revise & Resubmit at *Marketing Science*
- U.S. Non-Provisional Patent Pending

PUBLICATIONS

Jaeyeon Chung, Gita Johar, Yanyan Li, Oded Netzer, and Matthew Pearson (2022), “Mining Consumer Minds: Downstream Consequences of Host Motivations for Sharing Platforms,” *Journal of Consumer Research*, Vol.48 (5), p.817-838.

Kamel Jedidi, Bernd Schmitt, Malek Ben Sliman, and Yanyan Li (2021), “R2M Index 1.0: Assessing the Practical Relevance of Academic Marketing Articles,” *Journal of Marketing*, Vol.85 (5), p.22-41.

WORKING PAPERS

“**Social Influence in Network Experiments: An SDID-BART Model**” with Sha Yang.

“**What Makes You Like? Bodily, Facial, or Social-Economic Attractiveness**” with Kuan-Ming Chen, Ming-Jen Lin, and Yu-Wei Hsieh.

WORK IN PROGRESS

“Privacy-Preserving Targeting Strategy” with Sha Yang.

“Investor Herding in Collectible NFT Auctions” with Sha Yang, Russ Nelson, and Imran Currim.

PROFESSIONAL EXPERIENCE

Snap Inc. <i>Research Intern, Applied Research Group</i>	Los Angeles, CA 2020 – 2021
Columbia Business School <i>Research Coordinator, Marketing Department</i>	New York, NY 2015 – 2017

AWARDS AND FELLOWSHIPS

University of Houston Doctoral Symposium Fellow	2024
MSI Alden G. Clayton Doctoral Dissertation Proposal Competition Honorable Mention	2023
AMA-Sheth Foundation Doctoral Consortium Fellow	2023
USC Marshall Ph.D. Research Fellowship Award	2023
USC Marshall Ph.D. Outstanding Researcher Award	2022
Haring Symposium Best Discussant Award	2022
INFORMS Society for Marketing Science Doctoral Fellow	2021, 2023
Quantitative Marketing and Structural Econometrics Workshop Fellow	2019
USC Full Graduate Fellowship	2018 – 2020

TEACHING EXPERIENCE (at USC Marshall)

Instructor

MKT-402: Introduction to Marketing Analytics (Undergraduate Elective)	Summer 2022
• Instructor rating: 4.4/5.0 (school average: 4.1/5.0)	

Teaching Assistant

MKT-402: Research Skills for Marketing Insights (Undergraduate Elective)	Fall 2019
MKT-512: Customer Insights and Analysis (MBA Elective)	Fall 2019

CONFERENCE PRESENTATIONS (* denote presented by coauthor)

MSI Summit 2024: invited poster session	2024
University of Houston Doctoral Symposium	2024
ISMS Marketing Science Conference (virtual), University of Rochester	2021
ISMS Marketing Science Conference, Temple University	2018
Conference on Digital, Mobile Marketing, and Social Media Analytics, New York University	2017
Theory and Practice in Marketing Conference (TPM), Texas A&M University	2016

SERVICE

USC Marshall Quantitative Marketing Brown Bag Series, student assistant	Spring, Fall 2020
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RELEVANT COURSEWORK

Marketing

Advanced Quantitative Models in Marketing
Marketing Models in Consumer and B2B Markets
Strategic and Marketing Mix Models
Empirical Models
Consumer Behavior and Decision Making
Consumer Behavior Theory and Research

Dina Mayzlin and Sha Yang
Anthony Dukes and Lan Luo
S. Siddarth and Gerard Tellis
Oded Netzer (Columbia)
Kristin Diehl and Joseph Nunes
Michel T. Pham and Bernd Schmitt (Columbia)

Economics

Economic Analysis I, II
Economic Theory III, IV
Industrial Organization
Empirical Industrial Organization
Economic Analysis of Social Networks

Geoffrey Heal (Columbia)
Paolo Siconolfi (Columbia)
Guofu Tan
Yu-Wei Hsieh
Michael Leung

Econometrics

Econometric Methods
Applied Econometrics
Causal Inference Research Methods

Hyungsik Roger Moon
Cheng Hsiao
Tom Chang and Florenta Teodoridis

Statistics and Computer Science

Bayesian Statistics
Applied Multivariate Statistics
Deep Learning

Ronald Neath (Columbia)
Kamel Jedidi (Columbia)
Joseph Lim

SKILLS

Technical skills: Python, R, Matlab, SQL, STAN, Stata, SAS, Google Big Query, AWS

Languages: English (fluent); Mandarin (native)

REFERENCES

Professor Sha Yang
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JOB MARKET PAPER

“Understanding Privacy Invasion and Match Value of Targeted Advertising” with Sha Yang.

Abstract: Targeted advertising, advanced by behavioral tracking and data analytics, enhances consumer experience and marketing effectiveness. However, targeted advertising has raised significant privacy concerns among consumers and policymakers due to extensive data collection. Consequently, comprehending the tradeoff between match value and privacy concerns is crucial for the effective implementation of targeted advertising. In this research, we develop a structural model to empirically analyze this tradeoff, addressing a gap in the literature. We assume consumers form correlated beliefs about privacy invasion and match value from targeted ads in a Bayesian fashion, and use these beliefs to decide on ad clicks and opting out of ad tracking. Consumers update their privacy invasion beliefs based on how each received ad corresponds to their clicked ads and update their match value beliefs based on how well each ad engages them, doing so jointly due to the potential correlation between these beliefs. Leveraging the Limit Ad Tracking (LAT) policy change with iOS 10 in September 2016, which allows consumers to opt out of ad tracking, we estimate the model using panel ad impression and consumer response data from 166,144 opt-out and 166,144 opt-in consumers, across two months pre- and three months post-policy implementation. Our findings show that consumers generally dislike privacy invasion and prefer match value, with notable heterogeneity in these preferences. Consumers with higher uncertainty about privacy invasion are more likely to opt out of tracking. Upon opting out, highly privacy-sensitive consumers (about 20%) experience net benefits, while the majority face a net loss due to reduced match value. Furthermore, LAT challenges advertisers, especially smaller and lower-ranking ones, due to reduced visibility and increased customer acquisition costs. In counterfactual analyses, we propose a probabilistic targeting strategy that balances match value and privacy concern. Results suggest that it can benefit consumers, advertisers, and ad networks.

WORKING PAPERS

“A Representative Sampling Method for Peer Encouragement Designs in Network Experiments” with Sha Yang and Qing Liu.

Revise & Resubmit at Marketing Science

Abstract: Targeted marketing interventions on social networks, such as referral campaigns and social advertising, are prevalent. Companies are increasingly interested in conducting network experiments using peer encouragement designs to causally quantify the heterogeneous direct effects on focal individuals (egos) and indirect effects on their connections (alters). A widely adopted practice to obtain clean estimates involves drawing random samples from the population network and excluding contaminated egos and alters (e.g., those in the treatment and control groups with a friend relationship) from the analysis. However, this approach often results in underrepresentation and undersupply, which have been documented in the literature as major technical challenges in conducting network experiments with peer encouragement designs. While underrepresentation indicates the samples' lack of representation of the population characteristics, leading to biased inferences and limited generalizability, undersupply pertains to small sample size, resulting in low statistical power and experimental efficiency. In this research, we propose a representative sampling algorithm to improve peer encourage designs and causal inference by addressing these issues. Our method produces samples that better represent the population on individual network properties and personal characteristics and provides a larger sample size. Through simulations, we demonstrate that our method outperforms the

traditional excluding approach, allowing more precise estimation of average treatment effects and heterogeneity. Additionally, the proposed method is computationally efficient and can be easily adapted for various applications evaluating social influences.

“Social Influence in Network Experiments: An SDID-BART Model” with Sha Yang.

Abstract: Marketing interventions on social networks generate both direct and indirect treatment effects due to social influence, posing a challenge for standard Difference-in-Differences (DID). We propose a Bayesian semi-parametric approach (SDID-BART) that incorporates social influence within the DID framework. Our model uses Bayesian Additive Regression Trees (BART) to capture dynamic treatment effects, social influence effects, and their interactions with user characteristics, allowing for estimating direct and indirect treatment effects and their heterogeneity without assuming specific exposure models. Using data from a large-scale randomized experiment on a social network, we find that promoting an app function by adding a tab increases usage by 70.6% directly and 9.6% indirectly through social influence, indicating a downward bias in standard DID estimates. Additionally, we identify substantive heterogeneity in social influence, with untreated users and younger users reacting more positively to influence from their treated friends. Our research offers a practical tool for evaluating the effectiveness of marketing interventions on social networks and provides insights into targeting on social networks and Word-of-Mouth strategies.

“What Makes You Like? Bodily, Facial, or Social-Economic Attractiveness” with Kuan-Ming Chen, Ming-Jen Lin and Yu-Wei Hsieh. [[SSRN](#)]

Abstract: This paper quantifies the trade-off between social-economic characteristics and physical attractiveness. We use the state-of-the-art facial recognition algorithm to extract features such as eye size, lip width, and nose height from more than 460,000 photos. We find that education is the most important factor when it comes to whom to send a Like through the mobile dating app. Given the same educational attainment, men are more likely to use facial traits, and women are more likely to use height as the criterion to determine to whom to send a Like. We find that male users prefer women with the following facial cues: larger eyes, shorter distance between two eyes, smaller nose width, longer nose length, smaller upper lip, and larger lower lip. By contrast, most of the males' facial traits are not statistically significant in explaining females' Like data, except that larger upper lip and wider nose are unattractive traits.

WORK IN PROGRESS

“Privacy-Preserving Targeting Strategy” with Sha Yang.

Abstract: Privacy regulations impact advertisers' ability to target consumers based on behavioral information, leading to a shift toward targeting based on aggregate-level consumer data, such as contextual or bestseller targeting. This shift reduces ads relevance and disproportionately affects smaller advertisers in attracting new customers. To address this challenge, we propose a privacy-preserving targeting strategy. Using mobile in-app advertising as the empirical context, our algorithm, based on the SHOPPER framework, infers the app relationships from the “basket” of installed apps, and combines aggregate opt-in consumers data with ad content and relationship information. Using a Transformer model with a Deep Kernel Learning prediction head, the algorithm links consumer preferences to latent app features, generating ad sequences that closely resemble those from full targeting scenarios. This enhances consumer welfare by balancing match value and privacy and increases visibility for small advertisers.

“Investor Herding in Collectible NFT Auctions” with Sha Yang, Russ Nelson and Imran Currim.

Abstract: The premise of blockchain technology is that increasing public information and transparency should help people make more informed decisions. We investigated the influence of blockchain data on decision making, examining the mechanisms driving the price bubble on CryptoKitties, one of the first and most successful consumer products built on a blockchain. Observing past prices created significant bias in investing behavior. We found evidence of rational herding. Identifying the underlying mechanism confirmed that public transparency amplifies rather than reduces bias in decision making. Moreover, the tendency to herd was stronger during the market’s rise versus its collapse, indicating that investors used public information to justify beliefs in further price increases. Counterintuitively, our findings suggest that publicly disclosing all information is not sufficient for protecting investors.