Dear Committee,

Thanks for providing this great opportunity! I am Chenshuo Sun, an energetic fourth-year Ph.D. candidate in *Information Systems* at NYU Stern School of Business. My current research focus on three specific themes: (1) exploiting state-of-the-art AI/ML methods to draw a holistic view of consumer behavior across multiple channels; (2) studying the impact of emerging technologies on the market demand and supply; (3) investigating the privacy concerns about data-driven analytics. These research interests have yielded several working papers and talks at top conferences in the field.

In the following paragraphs, I will elaborate on several research work that I have been working on. Specifically, these projects are about:

1. ***Customer Analytics using Multiview Learning***. As companies embrace the explosion of consumer data to optimize their business strategies, understanding how to unlock the power of knowledge from multiple data sources and how to paint a holistic view of customers across channels is drawing increasing attention. In this paper, we propose a similarity-based multi-view learning method aiming to merge omnichannel behavioral data generated by customers, in which we: (1) use the similarity between customers to form the single-view embeddings that profile customers in each single channel, and then (2) leverage multi-view learning algorithms to combine the information from various channels. We show that the proposed method can help firms better detect similar customers and better predict customer engagement.
2. ***Predicting Consumer Purchase Journey using Deep Learning.*** The proliferation of omnichannel practices and emerging technologies opens up new opportunities for companies to collect voluminous data across multiple channels. This study examines whether leveraging omnichannel data can lead to –statistically and economically– significantly better predictions on consumers' online path-to-purchase journey. Using an omnichannel dataset that captures consumers' online behavior in terms of their website browsing trajectories and their offline behavior in terms of physical location trajectories for the same individuals, we predict consumers' future path-to-purchase journey based on their historical omnichannel behaviors. Using a state-of-the-art deep learning algorithm, we find that using omnichannel data can significantly improve our models' predictive power. The lift curve analysis reveals that the omnichannel model outperforms the corresponding single-channel model by 7.38%. This enhanced predictive power benefits various heterogeneous online firms, regardless of their size, selling general or niche products, having an offline presence or not, and mobile app presence or absence. Using an illustrative example of targeted marketing, we further quantify the economic value of the improved predictive power using a cost-revenue analysis.

3. ***The Impact of Voice AI on Consumer Purchase and Search***. In this project, we collaborate with Alibaba to study the effect of voice AI on consumer purchase and search behavior. We leverage a field experiment and a novel algorithm, instrumental forest, to estimate the heterogeneous treatment effect of voice shopping. We find that the usage of voice AI device adoption leads consumers to purchase more quantities and spend more. The positive impact on purchase is more pronounced for high-income, younger, and more active consumers. Moreover, Voice AI does not cannibalize other channels. The adoption of voice-activated shopping also leads to a larger search breadth and search depth.

Sincerely yours,

Chenshuo Sun

May 2021

Chenshuo Sun

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EDUCATION

2022 **NYU Stern School of Business, U.S.A.**
Ph.D. Candidate in *Information Systems*

2017 **Tsinghua University, China**
M.S. in *Engineering* (specialize in *Transportation Economics*)

2014 **Sichuan University, China**
B.Eng. in *Electrical Engineering with Honor* - GPA: 3.93/4 (Rank 1/203)

JOURNAL PUBLICATIONS & WORKING PAPERS

1. **Sun C**, Pei X, Hao J, Wang Y, Zhang Z, Wong SC. "Role of road network features in the evaluation of incident impacts on urban traffic mobility". ***Transportation Research Part B: Methodological***, (2018) 117, 101-116.
   - **Master's degree thesis** published in the flagship journal in the transportation field. Presented at *INFORMS* 2016.

2. **Sun C**, Adamopoulos P, Ghose A, and Luo X (2021) "Predicting stages in the consumer path-purchase journey: an omnichannel deep-learning model". Under 4th-round review at ***Information Systems Research***.
   - [**Grants**] MSI Grant 2018, CGEB Ph.D. Research Grant 2018
   - [**Award**] Finalists of the MSI Working Paper Competition
   - [**Talk**] **2018** -- *Wharton WINDS, Temple Fox, CMU, WISE*. **2019** -- *SCECR, ISMS, Yale-MIT CIIC, Temple Fox, MIT CODE, AI/ML/BA*. **2020** -- *WCBA, ISMS, MISQ, CIST, WISE*

3. **Sun C**, Shi Z, Liu X, Ghose A (2021) "The effect of voice AI on consumer purchase and search behavior". Under 2nd-round review at ***Marketing Science***.
   - [**Grants**] MSI Grant 2020, Alibaba Research Grant, CGEB Research Ph.D. Grant
   - [**Talk**] **2019** -- *TPM, ISMS, MIT CODE, Temple Fox, PKU*, WISE*. **2020** -- *WCBA, ISMS, SCECR, ZEW ICT, CIST, AI/ML/BA, WITS*. **2021** – *BU Questrom*, SJTU, FDU, ZJU, TADC, ISMS, TPM*
   - [**Media**] Working Capital Review, NewVoice.ai, SBVC.com.br

4. Ghose A, Li B, Macha M, **Sun C**, Foutz NZ (2021) "Sacrificing Privacy for Social Good: Did America Unite amid COVID-19?" Preparing for 2nd-round review at ***Management Science***.
    - [**Talk**] **2020** -- *UMN Carlson*, CMU-Pitt SITE*, MIT CODE, AI/ML/BA*, ICIS**

5. **Sun C** and Ghose A. "How 5G Changes Mobile App Consumption? Evidence from China' Mobile Market" (2021). ***Job Market Paper.***
    - [**Grants**] CGEB Ph.D. Urgent Research Grant
    - [**Talk**] **2021** – *SJTU, FDU, ZJU*

WORK IN PROGRESS

6. Sun C, Li B, Ghose A. "Location Intelligence and Innovation" (2021).

SELECTED AWARD & HONORS

2021 **JP Morgan PhD. Fellowship Award** (US$39K). 15 awardees selected worldwide.
2021 Tang Private Fellowship (US$7.5K). 100 Ph.D. awardees selected worldwide.
2020 Teaching Commendation from the Vice Dean for Doctoral Education of NYU Stern.
2020 Tang Private Fellowship (US$7K). 100 Ph.D. awardees selected worldwide.
2019 INFORMS Marketing Science Doctoral Consortium Fellow.
2018 Finalists, MSI 2018-2020 Research Priorities Working Paper Competition.
2018 Tang Private Fellowship (US$3K). 100 awardees selected worldwide.
2017-2022 Ph.D. Student Fellowship (till graduation), NYU Stern.
2015 Academic Scholarship, Tsinghua University.
2014 President's List, Sichuan University.
2013 Meritorious Winner of the Mathematical Contest in Modeling.
2011 National Scholarship (top 1%) by Ministry of Education, P.R. China.

SELECTED RESEARCH GRANTS

2021 P.I. Urgent Research Grant for Ph.D. Student (US$2K), NYU CGEB
2020 P.I. MSI Research Grant (US$9.5K), Marketing Science Institute (MSI)
2019 P.I. Research Grant for Ph.D. Student (US$1K), NYU CGEB 2019-Fall
2019 P.I. Research Grant for Ph.D. Student (US$4K), NYU CGEB 2019-Spring
2018 P.I. MSI Research Grant (US$6.5K), Marketing Science Institute (MSI)
2018 P.I. Research Grant for Ph.D. Student (US$5K), NYU CGEB 2018-Fall
2018-onward Travel grants (US$7K), from miscellaneous travel grants and awards

CONFERENCES PRESENTATIONS AND INVITED TALKS

1. Jun. 2021 ***SICSS*** - *Summer Institute in Computational Social Science*, Virtual.
2. Jun. 2021 ***ISMS*** - *Marketing Science Conference*, Virtual.
3. Jun. 2021 ***TPM*** - *Theory + Practice in Marketing*, Wharton, Virtual.
4. May 2021 ***TADC*** - *Trans-Atlantic Doctoral Conference*, Virtual.
5. May 2021 *School of Economics, Zhejiang University* (invited), Hangzhou, China.
6. May 2021 *School of Management, Fudan University* (invited), Shanghai, China.
7. Apr. 2021 *Antai College of Economics Management SJTU* (invited), Shanghai, China.
8. Mar. 2021 ***NBER*** - *Economics of Digitization*, Stanford, Virtual.
9. Mar. 2021 ***NBER*** - *Digitization Ph.D. Tutorial*, Stanford, Virtual.
10. Dec. 2020 ***WISE*** - *Workshop on Information Systems & Economics*, Virtual.
11. Dec. 2020 ***WITS*** - *Workshop on Information Technologies and Systems*, Virtual.
12. Dec. 2020 ***ICIS*** - *International Conference on Information Systems*, Virtual.
13. Dec. 2020 *Temple-NYU-CMU AI/ML/BA Conference*, Virtual.
14. Nov. 2020 ***CODE*** - *Conference on Digital Experimentation*, Virtual.
15. Nov. 2020 ***CIST*** - *Conference on Information Systems and Technology*, Virtual.
16. Aug. 2020 ***MISQ*** *Virtual Author Development Workshop*, Virtual.
17. July 2020 ***ZEW ICT*** - *ZEW Conference on the Economics of ICT* (12 papers accepted), Virtual.
18. Jun. 2020 ***SCECR*** - *Statistical Conference in E-Commerce Research*, Virtual.
19. Jun. 2020 ***ISMS*** - *Marketing Science Conference*, Virtual.
20. May 2020 ***TADC*** - *Trans-Atlantic Doctoral Conference*, accepted.
21. Mar. 2020 ***WCBA*** - *Winter Conference on Business Analytics*, accepted.
22. Mar. 2020 ***NBER*** *Economics of Digitization*, Stanford, CA.
23. Mar. 2020 ***NBER*** *Digitization Ph.D. Tutorial*, Stanford, CA.
24. Dec. 2019 *Tsinghua-Berkeley Shenzhen Institute* (invited), Shenzhen, China.
25. Dec. 2019 ***WISE*** - *Workshop on Information Systems & Economics*, Munich.
26. Dec. 2019 *Temple-NYU-CMU AI/ML/BA Conference*, Temple Fox, Philadelphia, PA.
27. Nov. 2019 ***CODE*** - *Conference on Digital Experimentation*, MIT Sloan, Cambridge, MA.
28. Oct. 2019 *Workshop at Fox School of Business*, Temple Fox, Philadelphia, PA.
29. Sep. 2019 ***CIIC*** – *Yale MIT China India Insights Conference*, MIT Sloan, MA.
30. Jun. 2019 ***ISMS*** - *Marketing Science Conference*, Rome, Italy.
31. Jun. 2019 ***SCECR*** - *Statistical Conference in E-Commerce Research*, Hong Kong.
32. May 2019 ***TPM*** - *Theory + Practice in Marketing*, Columbia CBS, New York, NY.
33. Dec. 2018 ***WISE*** - *Workshop on Information Systems & Economics*, San Francisco, CA.
34. Dec. 2018 *CMU Conference on Digital Marketing and Machine Learning*, Pittsburgh, PA.
35. Oct. 2018 ***WINDS*** - *Wharton Innovation Doctoral Symposium*, Philadelphia, PA.

36. Aug. 2018 *Workshop at Fox School of Business*, Philadelphia, PA.
37. Nov. 2016 ***INFORMS** Annual Meeting*, Nashville, TN.
38. Nov. 2016 *IEEE Intelligent Transportation Systems Conference,* Rio de Janeiro, Brazil.

TEACHING

1. Lecturer of 4 units UG core course, 32 students, "*Information Technology in Business & Society*" at NYU Stern. Summer 2020.
    - **Teaching Commendation from the Vice Dean for Doctoral Education**
    - **Instructor evaluation**: **4.8/5.0** (Department average: 4.3/5.0)
    - **Course evaluation**: **4.7/5.0** (Department average: 4.2/5.0)
    - Yielded 500+ online Twitter mentions with colleagues and peers.

2. Teaching Assistant with Professor Anindya Ghose at NYU Stern:
    - *Digital Marketing Analytics,* MSBA, Summer 2019, Summer 2020, Spring 2021
    - *Digital Marketing Analytics,* EMBA, Spring 2019, Spring 2020, Spring 2021
    - *Digital Marketing Analytics*, MBA, Fall 2019, Summer 2019, Summer 2020

3. Teaching Assistant with Professor Ravi Bapna at UMN Carlson:
    - *Data Mining in R*, MSBA, Fall 2020

OTHER PUBLICATIONS

1. Ghose A, Li B, Macha M, Sun C, Foutz NZ (2020) "Sacrificing Privacy for Social Good: Did America Unite amid COVID-19?" **41st International Conference on Information Systems (ICIS)**.
2. Dhar V, Sun C, Batra P (2019) "Transforming finance into vision: concurrent financial time series as convolutional nets", **Big Data.**
3. Sun C, Ghose A, Liu X (2018) "Automating Online-Offline Data Merger for Integrated Marketing", **Report, Marketing Science Institute**.

INDUSTRY EXPERIENCE

2019 **Alibaba**, Hangzhou, China.
Research Fellow. Collaborate on the research project "voice shopping".

2016 **Amazon Web Services (AWS)**, Beijing, China.
Solutions Architect. Design and implement cloud computing architectures.

SERVICES

1. Organizer of **ISPOC 20-21** (Information Systems Student Presentations over the Cloud), a virtual job market practice talk series.
2. Ad-hoc reviewer, **ISR, MISQ** and **ICIS** 2018/2019/2020.
3. Founder of the "All Things B-Schools" on Clubhouse.
4. Session chair, INFORMS Marketing Science Conference 2019.

OTHER FUN FACTS

- I have been a **competitive swimmer** (butterfly stroke and freestyle) since 2009. 'A' Times in USA Swimming Time Standards. NYU men water polo club player (2018).
- Real-estates industry fan. I passed the New Jersey Real Estate Licensee Exam.
- I love literary writing and one of my essays was once published by the largest newspaper in China (whose circulation was 3 million).