

# Yuan Yuan

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## EDUCATION

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### Massachusetts Institute of Technology

Cambridge, MA, USA

*PhD, Institute for Data, Systems, and Society*

*Sept 2016 - Present*

- Interdisciplinary Ph.D. program between data science and social science
- Dual Ph.D. in *Statistics*
- Thesis advisor: Alex ‘Sandy’ Pentland

### Tsinghua University

Beijing, China

*BEng, Computer Science; BA, Economics (2nd Major)*

*Sept 2012 - June 2016*

- Graduation with honors

## RESEARCH INTERESTS

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I research **social interactions** and **social networks** for social good by drawing upon methods, such as **causal inference**, **machine learning**, **experimental design**, and **network science**. I am broadly interested in **computational social science**.

## PUBLICATIONS AND MANUSCRIPTS

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- [3] **Yuan Yuan**, Tracy Xiao Liu, Chenhao Tan, Qian Chen, Alex ‘Sandy’ Pentland, and Jie Tang, “*Gift contagion in online groups: Evidence from WeChat red packets.*” Major Revision, *Management Science*.
- [2] **Yuan Yuan**, Ahmad Alabdulkareem, and Alex ‘Sandy’ Pentland. “*An interpretable approach for social network formation among heterogeneous agents.*” *Nature Communications*, 2018.
- [1] **Yuan Yuan**, Sihong Xie, Chun-Ta Lu, Jie Tang, and Philip S. Yu, “*Interpretable and effective opinion spam detection via temporal pattern mining across websites.*” *IEEE International Conference on Big Data*, 2016.

## WORK IN PROGRESS

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- [3] **Yuan Yuan**, Kristen Altenburger, and Farshad Kooti, “*Network motifs with treatment assignment conditions: Identifying heterogeneous network interference effects in A/B tests*”, submitted.
- [2] **Yuan Yuan**, Christos Nicolaides, Dean Eckles, and Alex ‘Sandy’ Pentland, “*Who motivates more workouts: Friends or strangers?*” working paper.
- [1] **Yuan Yuan**, Hesham Nawaz, Mohsen Mosleh, Margaret Ng, and Alex ‘Sandy’ Pentland, “*Testing indirect reciprocity heterogeneity using hyperrealistic photos produced by generative adversarial network*”, in preparation.

## WORK EXPERIENCE

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### Core Data Science Group, Facebook Research

Menlo Park, CA, USA

Research Intern

May 2020 - August 2020

- Mentor: Dr. Farshad Kooti
- Employed causal inference and machine learning to understand how to promote interactions and solidarity in social networks.

## INVITED TALKS & LECTURES

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- [4] “*Causal identifications in observational studies*”, invited talk, Big Data and Social Computing, Aug 2020.
- [3] “*Identifying gift contagion in online groups*,” guest lecturer for Behavioral Economics, Tsinghua University (remotely), Mar 2020.
- [2] “*Predicting economic growth by social diversity*,” invited talk, International Conference on Social Computing, Aug 2019.
- [1] “*Trading off between homophily and social exchange for social network formation*,” invited talk, Beijing Normal University, Jan 2019.

## CONFERENCE PRESENTATIONS

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- [14] “*Network motifs with treatment assignment conditions: Identifying heterogeneous network interference effects in A/B tests*” Conference on Digital Experimentation (CODE), Boston, Nov 2020.
- [13] “*Who motivates more workouts: Friends or strangers?*” International Conference on Network Science (NetSci), Rome, Sept 2020.
- [12] “*Who motivates more workouts: Friends or strangers?*”, International Conference on Computational Social Science (IC2S2), Boston, July 2020.
- [11] “*The contagion of online gift giving*,” INFORMS Annual Meeting, Seattle, Oct 2019.
- [10] “*Does prosocial contagion increase inequality? A large-scale online field experiment*,” International Conference on Computational Social Science (IC2S2), Amsterdam, July 2019.
- [9] “*A large-scale natural experiment of indirect reciprocity*,” Conference on Digital Experimentation (CODE), Boston, Oct 2018.
- [8] “*A large-scale natural experiment of indirect reciprocity*,” Advances in Field Experiments (AFE), Boston, Oct 2018.
- [7] “*Online red packets: A large-scale empirical study of gift giving on WeChat*,” International Conference on Computational Social Science (IC2S2), Evanston, July 2018.
- [6] “*An interpretable approach for social network formation among heterogeneous agents*,” International Conference on Computational Social Science (IC2S2), Evanston, July 2018.
- [5] “*Trade-off between social exchange and homophily in social network formation*,” International Conference on Network Science (NetSci), Paris, June 2018.

- [4] “*A large-scale empirical study of gift giving on WeChat,*” Annual Conference on Network Science and Economics (NetSci Econ), Nashville, Apr 2018.
- [3] “*Trade-off between social exchange and homophily in social network formation,*” Annual Conference on Network Science and Economics (NetSci Econ), Nashville, Apr 2018.
- [2] “*Social network formation based on endowment exchange. and Social Representation,*” Conference on Complex Systems (CCS), Cancún, Oct 2017.
- [1] “*Interpretable and effective opinion spam detection via temporal pattern mining across websites,*” IEEE International Conference on Big Data (BigData), Washington DC, Dec 2016.

## PROFESSIONAL SERVICES

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**Technical Program Committee:** Conference on Digital Experimentation (CODE), Boston, 2019 & 2020.

**Organizer:** Summer Institute in Computational Social Science, Beijing, 2020 (postponed)

**Session chair:** CODE’2019, IC2S2’2020.

**Reviewer:** ACM Transactions on Knowledge Discovery from Data, Misinformation Review, CODE’19, IC2S2’20.

**Mentorship:** Hesham Nawaz (MIT undergraduate research intern).

## MEDIA COVERAGE

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- [2] “*WeChat is running a natural experiment in human generosity,*” MIT Technology Review, 2019.
- [1] “*Model helps explain how social networks form,*” PNAS Journal Club, 2018.

## SELECTED AWARDS & GRANTS

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Travel Grant for International Conference on Network Science	<i>2020</i>
Research Grant (\$5,000) from Russel Sage Foundation (co-PI)	<i>2019</i>
Participant in Summer Institute in Computational Social Science, Princeton University	<i>2019</i>
Travel Grant for Annual Conference on Network Science and Economics	<i>2018</i>
College Graduate Excellence Award, Tsinghua University	<i>2016</i>
China Computer Federation Outstanding Undergraduate Award	<i>2015</i>
Chinese National Scholarship	<i>2014</i>

## REFERENCES

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- o **Alex ‘Sandy’ Pentland**, MIT Media Lab and Sloan School of Management, sandy@media.mit.edu.
- o **Dean Eckles**, MIT Sloan School of Management, eckles@mit.edu.
- o **Sinan Aral**, MIT Sloan School of Management, sinan@mit.edu.
- o **Farshad Kooti**, Facebook Research, farshadkt@fb.com.