Xintong Wang
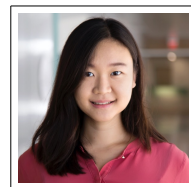
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Education

2015 – 2021	**University of Michigan, Ann Arbor**, *Ph.D. in Computer Science and Engineering.*
	○ Track: Artificial Intelligence
	○ Advisor: Michael P. Wellman
2015 – 2018	**University of Michigan, Ann Arbor**, *M.Sc. in Computer Science and Engineering.*
2011 – 2015	**Washington University in St. Louis**, *B.Sc. in Computer Science.*
	○ Second major in Applied Mathematics, the College of Arts & Sciences
	○ Second major in Finance, the Olin Business School
	○ *magna cum lauda*

Professional Experience

Feb 2021 –	**Postdoctoral Fellow**, *Harvard University, Cambridge, MA.*
	○ EconCS Group, School of Engineering and Applied Sciences
	○ Host: David C. Parkes
Summer 2019	**Research Intern**, *J.P. Morgan AI Research, New York City, NY.*
	○ Mentor: Tucker Hybinette Balch, Manuela Veloso
Summer 2018	**Research Intern**, *Microsoft Research, New York City, NY.*
	○ Mentors: David M. Pennock, David M. Rothschild
Summer 2014	**Algorithmic Trading Intern**, *IMC Financial Markets, Chicago, IL.*
	○ Mentor: Floris Ouwendijk

Research Interests

I develop computational methods to model and analyze complex agent behaviors for the design of efficient market-based algorithmic systems. I study how to leverage data (both simulated and from real marketplaces) to understand agent behavior and inform design decisions, such as market operations, information disclosure policies, and regulatory interventions.

○ Methods: AI and machine learning, optimization, multi-agent systems, economics (game theory).

○ Application areas: Economic platforms, prediction markets, financial markets and DeFi.

Publications (*: equal contribution)

Preprints and Under Submission

Platform Behavior under Market Shocks: A Simulation Framework and Reinforcement Learning Based Study

Xintong Wang, Gary Qiurui Ma, Alon Eden, Clara Li, Alexander Trott, Stephan Zheng, David C. Parkes

Under Submission, arXiv preprint:2203.13395

Journal Publications

Spoofing the Limit Order Book: A Strategic Agent-Based Analysis
Xintong Wang, Christopher Hoang, Yevgeniy Vorobeychik, Michael P. Wellman
Games 2021, 12(2), 46.

Conference Publications

Differential Liquidity Provision in Uniswap v3 and Implications for Contract Design
Zhou Fan, Francisco Marmolejo-Cossío, Ben Altschuler, He Sun, Xintong Wang, David C. Parkes
(ICAIF 2022) *3rd ACM International Conference on AI in Finance.*

Designing a Combinatorial Financial Options Market
Xintong Wang, David M. Pennock, Nikhil R. Devanur, David M. Rothschild, Biaoshuai Tao, Michael P. Wellman
(EC 2021) *23rd ACM Conference on Economics and Computation.*

Log-time Prediction Markets for Interval Securities
Miroslav Dudík*, Xintong Wang*, David M. Pennock, David M. Rothschild
(AAMAS 2021) *20th International Conference on Autonomous Agents and Multiagent Systems.*

Market Manipulation: An Adversarial Learning Framework for Detection and Evasion
Xintong Wang, Michael P. Wellman
(IJCAI 2020) *29th International Joint Conference on Artificial Intelligence.*

Generating Realistic Stock Market Order Streams
Junyi Li, Xintong Wang, Yaoyang Lin, Arunesh Sinha, Michael P. Wellman
(AAAI 2020) *34th AAAI Conference on Artificial Intelligence.*

Learning-based Trading Strategies in the Face of Market Manipulation
Xintong Wang, Christopher Hoang, Michael P. Wellman
(ICAIF 2020) *1st ACM International Conference on AI in Finance.*

A Cloaking Mechanism to Mitigate Market Manipulation
Xintong Wang, Yevgeniy Vorobeychik, Michael P. Wellman
(IJCAI 2018) *27th International Joint Conference on Artificial Intelligence.*

Spoofing the Limit Order Book: An Agent-based Model
Xintong Wang, Michael P. Wellman
(AAMAS 2017) *16th International Conference on Autonomous Agents and Multiagent Systems.*

Workshop & Consortium Papers

Studies on the Computational Modeling and Design of Financial Markets
Xintong Wang
AAMAS 2019 Doctoral Consortium.

Market Making with Liquidity Adaptation via Learning Rate Tuning
Xintong Wang
EC 2017 Workshop on Forecasting.

Honors & Awards

2022 **Rising Stars in Data Science**, *hosted by the University of Chicago.*
2020 **Finalist, CSE Graduate Student Honors Competition**, *University of Michigan, Ann Arbor.*
2019 **Rising Stars in EECS Workshop**, *hosted by the University of Illinois Urbana-Champaign.*
2017 **D. E. Shaw Exploration Fellowship**.
2015 **Distinction in Mathematics**, *Washington University in St. Louis.*
2014 **University Scholarship**, *Washington University in St. Louis.*

Teaching & Mentoring Experience

Teaching

University of Michigan, Ann Arbor
Graduate Student Instructor, EECS 203 Discrete Mathematics | Fall 2016

Washington University in St. Louis
Teaching Assistant, MEC 290 Microeconomics | Springs 2013, 2014, 2015
Teaching Assistant, MGT 100 Individual in a Managerial Environment | Falls 2012, 2013, 2014

Research Mentoring

Harvard University

○ David Assaraf , M.Sc. in Data Science | Spring 2022
Co-advising (with Prof. David C. Parkes), COMPSCI 299R Special Topics in Computer Science.
Topic: Analyzing Amazon Basics data to model the platform's behavior on launching products.
○ Gary Ma, Ph.D. student in Computer Science | 2021 – 2022
Topic: Modeling platform economies under the pandemic shock.
○ Clara Li, B.Sc. in Computer Science | 2021 – 2022
Senior Thesis: Reinforcement learning for modeling platform economies under shock.

University of Michigan, Ann Arbor

○ Christopher Hoang, B.Sc. in Computer Science | 2018 – 2020
Co-advising (with Prof. Michael P. Wellman), EECS 499 Undergraduate Independent Study.
Topic: Designing learning-based trading agents. Related publications: Games 2021, ICAIF 2020.
○ Shashank Kedia, M.Sc. in Computer Science | Spring 2019
Co-advising (with Prof. Michael P. Wellman), EECS 599 Graduate Independent Study.
Topic: Generative models for agent-based activity traces.
○ Junyi Li, M.Sc. in Computer Science | 2018 – 2019
Topic: Generative models for time series data (order streams). Related publications: AAAI 2020.
○ Yaoyang Lin, B.Sc. in Computer Science | 2018 – 2019
Topic: Simulation validation and generating time series data. Related publications: AAAI 2020.
○ Noah Fidel, B.Sc. in Data Science Engineering | 2017 – 2018
Topic: Simulation validation and learning from limit order book data.
○ Meghana Somsaale, B.Sc. in Computer Science | 2017 – 2018
Topic: Evidence and patterns of market manipulation in crypto markets.
○ Zheng Chen, B.Sc. in Computer Science | 2017 – 2018
Topic: Anomaly detection on time-series data.

Service

Program Committee Member
- AAAI Conference on Artificial Intelligence (AAAI), 2021–2023
- ACM International Conference on AI in Finance (ICAIF), 2020–2022
- Workshop on Artificial Intelligence for Social Good (AI4SG), 2021

Workshop and Seminar Organization
- Co-Chair, AMD Session on Financial Market Design, INFORMS Annual Meeting, 2021
- Organizer, AI Seminar, University of Michigan, 2018 – 2019

Conference Reviewing

Conference on Autonomous Agents and Multiagent Systems (AAMAS); Conference on Artificial Intelligence, Ethics and Society (AIES); Conference on Economics and Computation (EC); Conference on Artificial Intelligence (IJCAI); Workshop on Matching Under Preferences (MATCH–UP); Conference on Web and Internet Economics (WINE); The Web Conference (WWW).

Journal Reviewing

IEEE Intelligent Systems; Autonomous Agents and Multi-Agent Systems (JAAMAS)

Student Mentor
- EC Mentoring Workshop, 2022
- The Ensemble of CSE Ladies+, University of Michigan, 2016 – 2020

References

- **Michael P. Wellman** (Ph.D. advisor)
  Professor of Computer Science and Engineering, *University of Michigan*
  wellman@umich.edu

- **David C. Parkes** (Postdoctoral fellow host)
  Professor of Computer Science, *Harvard University*
  parkes@eecs.harvard.edu

- **David M. Pennock**
  Professor of Computer Science, *Rutgers University*
  dpennock@dimacs.rutgers.edu

- **Uday Rajan**
  Professor of Finance, *University of Michigan*
  urajan@umich.edu

- **Tucker Hybinette Balch**
  Research Director, *J.P. Morgan AI Research, NYC*
  tucker.balch@jpmchase.com