

CONTACT INFORMATION	Dept. of Computer Science & Engineering Washington University in St. Louis Campus Box 1045, McKelvey Hall 2010A One Brookings Drive St. Louis, MO 63130	<i>Phone:</i> (314) 935-8073 <i>E-mail:</i> <a href="mailto:chienju.ho@wustl.edu">chienju.ho@wustl.edu</a> <a href="http://chienjuho.com">http://chienjuho.com</a>
RESEARCH INTERESTS	Machine learning, algorithmic economics, optimization, online social behavioral science, on-line algorithm, crowdsourcing, social computing, and artificial intelligence  I am interested in investigating the interactions between humans and AI, including developing AI algorithms to learn from humans (e.g., in the context of crowdsourcing) and designing AI algorithms to assist human decision-making (e.g., through updating decision-making environments or designing assistive information).	
EMPLOYMENT	<b>Washington University in St. Louis</b> , St. Louis, MO Assistant Professor, Computer Science & Engineering, August 2017 to Present  <b>Cornell University</b> , Ithaca, NY Postdoctoral Associate, October 2015 to July 2017 <ul style="list-style-type: none"> <li>• Host: Arpita Ghosh</li> </ul>	
EDUCATION	<b>University of California, Los Angeles</b> , Los Angeles, CA Ph.D., Computer Science, September 2010 to October 2015 <ul style="list-style-type: none"> <li>• Dissertation: Design and Analysis of Crowdsourcing Mechanisms</li> <li>• Advisor: Jennifer Wortman Vaughan</li> </ul> <b>Harvard University</b> , Cambridge, MA Visiting Ph.D. Student, Computer Science, October 2012 to September 2015 <ul style="list-style-type: none"> <li>• Mentor: Yiling Chen</li> </ul> <b>National Taiwan University</b> , Taipei, Taiwan M.S., Computer Science and Information Engineering, June 2007 B.S., Computer Science and Information Engineering, June 2005 B.S., Physics, June 2005	
AWARDS	<b>Best Paper Honorable Mention</b> , AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2021  <b>Best Paper Award Nominee</b> , International World Wide Web Conference (WWW), 2015  <b>Google Outstanding Graduate Research Award</b> , Computer Science, UCLA, 2015  <b>Dissertation Year Fellowship</b> , UCLA, 2014-2015	
PH.D. STUDENTS	Wei Tang, Computer Science and Engineering <ul style="list-style-type: none"> <li>• Human-Centered Machine Learning: Algorithm Design and Human Behavior</li> <li>• Next Position: Postdoctoral associate at Columbia University</li> </ul>	01/2018 to 08/2022
	Guanghui Yu, Computer Science and Engineering	01/2020 to present
	Saumik Narayanan, Computer Science and Engineering	01/2021 to present
	Lauren Treiman, Division of Computational and Data Sciences <ul style="list-style-type: none"> <li>• Co-advised with Wouter Kool</li> </ul>	09/2022 to present
	Alex DiChristofano, Division of Computational and Data Sciences	01/2023 to present

- Co-advised with Patrick Fowler

Robert Kasumba, Division of Computational and Data Sciences

01/2023 to present

- Co-advised with Dennis Barbour

Tory Farmer, Computer Science and Engineering

01/2024 to present

## PUBLICATIONS

In most cases, my collaborators and I choose to have students as first authors and then determine the authorship of non-student authors alphabetically.

Students that I advise are marked with \*.

### **Rationality-Robust Information Design: Bayesian Persuasion under Quantal Response.**

$(\alpha - \beta)$  Yiding Feng, Chien-Ju Ho, and \*Wei Tang.

ACM-SIAM Symposium on Discrete Algorithms (SODA), 2024

### **Encoding Human Behavior in Information Design through Deep Learning.**

\*Guanghui Yu, \*Wei Tang, \*Saumik Narayanan, and Chien-Ju Ho.

Annual Conference on Neural Information Processing Systems (NeurIPS), 2023.

### **Humans Forgo Reward to Instill Fairness into AI.**

\*Lauren Treiman, Chien-Ju Ho, and Wouter Kool.

AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2023.

### **How Does Value Similarity Affect Human Reliance in AI-Assisted Ethical Decision Making?**

\*Saumik Narayanan, \*Guanghui Yu, Chien-Ju Ho, and Ming Yin.

AAAI/ACM Conference on AI, Ethics, and Society (AIES), 2023.

### **Competitive Information Design for Pandora's Box.**

$(\alpha - \beta)$  Bolin Ding, Yiding Feng, Chien-Ju Ho, \*Wei Tang, and Haifeng Xu.

ACM-SIAM Symposium on Discrete Algorithms (SODA), 2023.

### **Environment Design for Biased Decision Makers.**

\*Guanghui Yu and Chien-Ju Ho.

International Joint Conference on Artificial Intelligence (IJCAI), 2022.

### **How Does Predictive Information Affect Human Ethical Preferences?**

\*Saumik Narayanan, \*Guanghui Yu, \*Wei Tang, Chien-Ju Ho, and Ming Yin.

AAAI/ACM Conference on AI, Ethics, and Society (AIES), 2022.

### **The Influences of Task Design on Crowdsourced Judgement: A Case Study of Recidivism Risk Evaluation.**

Xiaoni Duan, Chien-Ju Ho, and Ming Yin.

The Web Conference (WWW), 2022.

### **Bandit Learning with Delayed Impact of Actions.**

\*Wei Tang, Chien-Ju Ho, and Yang Liu.

Annual Conference on Neural Information Processing Systems (NeurIPS), 2021.

### **On the Bayesian Rational Assumption in Information Design.**

\*Wei Tang and Chien-Ju Ho.

AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2021.

*Best Paper Honorable Mention.*

### **Linear Models are Robust Optimal Under Strategic Behavior.**

\*Wei Tang, Chien-Ju Ho, and Yang Liu.

International Conference on Artificial Intelligence and Statistics (AISTATS), 2021.

**Efficient Nonmyopic Online Allocation of Scarce Reusable Resource.**

\*Zehao Dong, Sanmay Das, Patrick Fowler, and Chien-Ju Ho.

International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2021.

**Optimal Query Complexity of Secure Stochastic Convex Optimization.**

\*Wei Tang, Chien-Ju Ho, and Yang Liu.

Annual Conference on Neural Information Processing Systems (NeurIPS), 2020.

**Does Exposure to Diverse Perspectives Mitigate Biases in Crowdwork? An Explorative Study.**

Xiaoni Duan, Chien-Ju Ho, and Ming Yin.

AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2020.

**Differentially Private Contextual Dynamic Pricing.**

\*Wei Tang, Chien-Ju Ho, and Yang Liu.

International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2020.

**Incorporating Compatible Pairs in Kidney Exchange: A Dynamic Weighted Matching Model.**

Zhuoshu Li, \*Kelsey Lieberman, \*William Macke, Sofia Carrillo, Chien-Ju Ho, Jason Wellen, and Sanmay Das.

ACM conference on Economics and Computation (EC), 2019.

**Leveraging Peer Communication to Enhance Crowdsourcing.**

\*Wei Tang, Chien-Ju Ho, and Ming Yin.

The Web Conference 2019 (WWW), 2019.

**Bandit Learning with Biased Human Feedback.**

\*Wei Tang and Chien-Ju Ho.

International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2019.

**Incentivizing High Quality User Contributions: New Arm Generation in Bandit Learning.**

Yang Liu and Chien-Ju Ho.

AAAI Conference on Artificial Intelligence (AAAI), 2018.

**Eliciting Categorical Data for Optimal Aggregation.**

Chien-Ju Ho, Rafael Frongillo, and Yiling Chen.

Annual Conference on Neural Information Processing Systems (NIPS), 2016.

**Adaptive Contract Design for Crowdsourcing Markets: Bandit Algorithms for Repeated Principal-Agent Problems.**

Chien-Ju Ho, Aleksandrs Slivkins, and Jennifer Wortman Vaughan.

Journal of Artificial Intelligence Research, Volume 55, pages 317-359, 2016. (Supersedes the EC'14 paper)

**Low-Cost Learning via Active Data Procurement.**

$(\alpha - \beta)$  Jacob Abernethy, Yiling Chen, Chien-Ju Ho, and Bo Waggoner.

ACM Conference on Economics and Computation (EC), 2015.

**Incentivizing High Quality Crowdwork.**

Chien-Ju Ho, Aleksandrs Slivkins, Siddharth Suri, and Jennifer Wortman Vaughan.

International World Wide Web Conference (WWW), 2015.

*Nominee for Best Paper Award.*

**Adaptive Contract Design for Crowdsourcing Markets: Bandit Algorithms for Repeated Principal-Agent Problems.**

Chien-Ju Ho, Aleksandrs Slivkins, and Jennifer Wortman Vaughan.

ACM Conference on Economics and Computation (EC), 2014.

**Adaptive Task Assignment for Crowdsourced Classification.**

Chien-Ju Ho, Shahin Jabbari, and Jennifer Wortman Vaughan.  
International Conference on Machine Learning (ICML), 2013.

**Online Task Assignment in Crowdsourcing Markets.**

Chien-Ju Ho and Jennifer Wortman Vaughan.  
AAAI Conference on Artificial Intelligence (AAAI), 2012.

**Towards Social Norm Design for Crowdsourcing Markets.**

Chien-Ju Ho, Yu Zhang, Jennifer Wortman Vaughan, and Mihaela van der Schaar.  
Human Computation Workshop (HCOMP), 2012.

**DevilTypers: A Game for CAPTCHA Usability Evaluation.**

Chien-Ju Ho, Chen-Chi Wu, Kuan-Ta Chen, and Chin-Laung Lei.  
In ACM Computers in Entertainment, 2011.

**On Formal Models for Social Verification.**

Chien-Ju Ho and Kuan-Ta Chen.  
Human Computation Workshop (HCOMP), 2009.

**KissKissBan: A Competitive Human Computation Game for Image Annotation (Short Paper).**

Chien-Ju Ho, Tao-Hsuan Chang, Jong-Chuan Lee, Jane Yung-jen Hsu, and Kuan-Ta Chen.  
Human Computation Workshop (HCOMP), 2009.

**Designing Human-Computer Multi-agent Collaboration in Productive Multi-player Games (Short Paper).**

Wenn-Chieh Tsai, Yuan-Hsiang Lee, Tsung-Hsiang Chang, Chien-Ju Ho, and Jane Yung-jen Hsu.  
International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2008.

**PhotoSlap: A Multi-player Online Game for Semantic Annotation.**

Chien-Ju Ho, Tsung-Hsiang Chang, and Jane Yung-jen Hsu.  
AAAI Conference on Artificial Intelligence (AAAI), 2007.

**The PhotoSlap Game: Play to Annotate (Intelligent System Demo).**

Tsung-Hsiang Chang, Chien-Ju Ho, and Jane Yung-jen Hsu.  
AAAI Conference on Artificial Intelligence (AAAI), 2007.

FUNDING

Leveraging Machine Learning to Model Human Behavior and Improve Decision Making

- Funding agency: J.P. Morgan Faculty Research Award
- Role: PI
- Award amount: \$70,000
- Duration: 09/2023-09/2024

Accounting for Human Biases to Improve AI-Assisted Decision Making

- Funding agency: WashU TRIADS Seed Grant
- Role: Co-PI (PI: Wouter Kool)
- Award amount: \$39,906
- Duration: 04/2023-03/2024

Understanding and Accounting for Human Behavior and Beliefs in Human-AI Collaboration

- Funding agency: McDonnell International Scholars Academy: Global Incubator Seed Grant
- Role: Co-PI (PI: William Yeoh)
- Award amount: \$25,000
- Duration: 12/2022-12/2023

Forming Representative Cohorts: Sequential Recruitment under Uncertainty

- Funding agency: J.P. Morgan Faculty Research Award
- Role: PI (Co-PI: Yevgeniy Vorobeychik)
- Award amount: \$95,000
- Duration: 09/2022-04/2024

Promoting AI Research: HCOMP 2022 Doctoral Consortium

- Funding agency: Artificial Intelligence Journal (AIJ)
- Role: PI (with Alex Williams, Amazon)
- Award amount: Euro 3,000

Sequential Decision Making with Human Biases

- Funding agency: Office of Naval Research (ONR)
- Role: PI
- Award amount: \$453,151
- Duration: 4/2020-6/2023

AI: FairGame: An Audit-Driven Game Theoretic Framework for Development and Certification of Fair AI

- Funding agency: National Science Foundation (NSF) / Amazon
- Role: Co-PI (PI: Yevgeniy Vorobeychik)
- Award amount: \$785,000
- Duration: 1/2020-12/2022

Solving Homelessness Using Data-Driven Feedback Systems

- Funding agency: Washington University OVCR
- Role: Co-PI (PI: Patrick Fowler)
- Award amount: \$50,000
- Duration: 6/2019-6/2020

TEACHING  
EXPERIENCE

**Instructor**, Washington University in St. Louis 2017 to Present

CSE 417T: Introduction to Machine Learning

- Fall 2017, Fall 2018, Spring 2020, Spring 2021, Spring 2022, Fall 2022

CSE 518A: Human-in-the-Loop Computation / Crowdsourcing and Human Computation

- Spring 2019, Fall 2019, Fall 2020, Fall 2021, Fall 2022, Spring 2024

**Full-time Teaching Assistant**, National Taiwan University

2009 to 2010

- Administrator of the Logic Laboratory.
- Instructor of the course “Digital Circuit Laboratory”.
- Instructor of the course “Digital System Laboratory”.
- Teaching assistant of “Artificial Intelligence” and “Digital System Design”.

SERVICE

**Conference Services:**

Doctoral Consortium Co-Chair: HCOMP 2022

Works-in-Progress and Demonstration Co-Chair: HCOMP 2019

**Area Chair or Senior Program Committee:**

AAAI Conference on Artificial Intelligence (AAAI): 2020, 2021, 2022, 2023, 2024

Conference on Neural Information Processing Systems (NeurIPS): 2021, 2022, 2023

International Conference on Learning Representations (ICLR): 2024

International Conference on Machine Learning (ICML): 2023, 2024

International Joint Conference on Artificial Intelligence (IJCAI): 2021

**Program Committee or Formal Reviewer:**

AAAI/ACM Conference on AI, Ethics, and Society (AIES): 2023

AAAI Conference on Artificial Intelligence (AAAI): 2013, 2018, 2019

AAAI Conference on Human Computation and Crowdsourcing (HCOMP): 2016, 2018

ACM Conference on Economics and Computation (EC): 2015, 2016, 2017, 2018  
ACM Conference on Fairness, Accountability, and Transparency (FAccT): 2023  
ACM International Conference on Web Search and Data Mining (WSDM): 2021  
Conference on Neural Information Processing Systems (NIPS, NeurIPS): 2013-2020  
International Conference on Machine Learning (ICML): 2021, 2022  
International Joint Conference on Artificial Intelligence (IJCAI): 2015, 2016, 2018, 2020, 2022  
International World Wide Web Conference (WWW): 2017, 2018, 2019, 2021, 2022

**Auxiliary Reviewer:**

HCOMP 2012, HCOMP 2013 WiP, WINE 2013, AAAI 2014, WINE 2016, FAMAS 2019

**Workshop Organizer:**

HCOMP Workshop on Mathematical Foundations of Human Computation, 2016  
NIPS Workshop on Crowdsourcing and Machine Learning, 2014

**Journal Referee:**

ACM Transactions on Intelligent Systems and Technology  
ACM Transactions on Economics and Computation  
Artificial Intelligence Journal  
Annals of Mathematics and Artificial Intelligence  
Autonomous Agents and Multi-Agent Systems  
IEEE Transactions on Computational Intelligence and AI in Games  
IEEE Transactions on Computational Social Systems  
IEEE Transactions on Knowledge and Data Engineering  
IEEE Transactions on Parallel and Distributed Systems  
Journal of Artificial Intelligence Research  
Journal of Machine Learning Research  
Journal of the Association for Information Science and Technology  
World Wide Web Journal

**Organizer of** UCLA Social Computing Reading Group, Sep. 2011 to Mar. 2012