

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> chienju.ho@wustl.edu http://chienjuho.com
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	Washington University in St. Louis , St. Louis, MO Assistant Professor, Computer Science & Engineering, August 2017 to Present Cornell University , Ithaca, NY Postdoctoral Associate, October 2015 to July 2017 <ul style="list-style-type: none"> • Host: Arpita Ghosh 	
EDUCATION	University of California, Los Angeles , Los Angeles, CA Ph.D., Computer Science, September 2010 to October 2015 <ul style="list-style-type: none"> • Dissertation: Design and Analysis of Crowdsourcing Mechanisms • Advisor: Jennifer Wortman Vaughan Harvard University , Cambridge, MA Visiting Ph.D. Student, Computer Science, October 2012 to September 2015 <ul style="list-style-type: none"> • Mentor: Yiling Chen National Taiwan University , 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	Best Paper Honorable Mention , AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2021 Best Paper Award Nominee , International World Wide Web Conference (WWW), 2015 Google Outstanding Graduate Research Award , Computer Science, UCLA, 2015 Dissertation Year Fellowship , UCLA, 2014-2015	
PH.D. STUDENTS	Wei Tang, Computer Science and Engineering 01/2018 to 08/2022 <ul style="list-style-type: none"> • Human-Centered Machine Learning: Algorithm Design and Human Behavior • Next Position: Postdoctoral Associate at Columbia University • (Starting in Sep 2024) Assistant Professor at CUHK Business School Guanghai 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 09/2022 to present <ul style="list-style-type: none"> • Co-advised with Wouter Kool 	

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

* denotes students that I advise.

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

The Impact of Features Used by Algorithms on Perceptions of Fairness.

Andrew Estornell, Tina Zhang, Sanmay Das, Chien-Ju Ho, Brendan Juba, and Yevgeniy Vorobeychik
International Joint Conference on Artificial Intelligence (IJCAI), 2024

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.

DevilTyper: 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 Weak Human Supervisions to Improve Strong Machine Learning Models

- Funding agency: OpenAI Superalignment Fast Grants
- Role: PI
- Award amount: \$133,000
- Duration: 2024-2025

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: 04/2023-03/2025

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

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

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: 1/2020-12/2023

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

Washington University in St. Louis

2017 to Present

CSE 518A: Human-in-the-Loop Computation, Spring 2024

- Instructor
- Number of enrolled undergraduate students: 5
- Number of enrolled graduate students: 17

CSE 417T: Introduction to Machine Learning, Fall 2022

- Instructor
- Number of enrolled undergraduate students: 51
- Number of enrolled graduate students: 39
- Instructor rating: mean 6.12/7 median 7/7

CSE 518A: Human-in-the-Loop Computation, Fall 2022

- Instructor
- Number of enrolled undergraduate students: 1
- Number of enrolled graduate students: 26

- Instructor rating: mean 5.78/7 median 6/7

CSE 417T: Introduction to Machine Learning, Spring 2022

- Instructor
- Number of enrolled undergraduate students: 35
- Number of enrolled graduate students: 68
- Instructor rating: mean 5.94/7 median 6.5/7

CSE 518A: Human-in-the-Loop Computation, Fall 2021

- Instructor
- Number of enrolled undergraduate students: 14
- Number of enrolled graduate students: 28
- Instructor rating: mean 6.67/7 median 7/7

CSE 417T: Introduction to Machine Learning, Spring 2021

- Instructor
- Number of enrolled undergraduate students: 43
- Number of enrolled graduate students: 41
- Instructor rating: mean 6.09/7 median 6/7

CSE 518A: Human-in-the-Loop Computation, Fall 2020

- Instructor
- Number of enrolled undergraduate students: 4
- Number of enrolled graduate students: 17
- Instructor rating: mean 6.63/7 median 7/7

CSE 417T: Introduction to Machine Learning, Spring 2020

- Instructor
- Number of enrolled undergraduate students: 62
- Number of enrolled graduate students: 71
- Instructor rating: mean 5.84/7 median 6/7

CSE 518A: Human-in-the-Loop Computation, Fall 2019

- Instructor
- Number of enrolled undergraduate students: 11
- Number of enrolled graduate students: 23
- Instructor rating: mean 6.13/7 median 6/7

CSE 518A: Crowdsourcing and Human Computation, Spring 2019

- Instructor (Creator of the course)
- Number of enrolled undergraduate students: 5
- Number of enrolled graduate students: 23
- Instructor rating: mean 6.35/7 median 7/7

CSE 417T: Introduction to Machine Learning, Fall 2018

- Instructor
- Number of enrolled undergraduate students: 33
- Number of enrolled graduate students: 50
- Instructor rating: mean 5.44/7 median 6/7

CSE 417T: Introduction to Machine Learning, Fall 2017

- Instructor
- Number of enrolled undergraduate students: 30
- Number of enrolled graduate students: 29
- Instructor rating: mean 5.76/7 median 6/7

STUDENT
COMMITTEES

PhD Dissertation Committee

- Hao Yan (Advisor: Sanmay Das, Defended in Fall 2019)
- Christabel Wayllace (Advisor William Yeoh: , Defended in Spring 2021)
- Arghya Datta (Advisor: Joshua Swamidass, Defended in Spring 2021)
- Athena Tabakhi (Advisor: William Yeoh, Defended in Summer 2021)
- Henry Chai (Advisor: Roman Garnett, Defended in Summer 2021)
- Maede Zolanvari (Advisor: Raj Jain, Defended in Fall 2021)
- Dingwen Li (Advisor: Chenyang Lu, Defended in Fall 2021)
- Sixie Yu (Advisor: Yevgeniy Vorobeychik, Defended in Spring 2022)
- Khoi Hoang (Advisor: William Yeoh, Defended in Spring 2022)
- Amanda Kube (Advisor: Sanmay Das and Patrick Fowler, Defended in Spring 2022)
- Hai Le (Advisor: Brendan Juba, Defended in Spring 2023)
- Shayan Monadjemi (Advisor: Alvitta Ottley, Defended in Spring 2023)
- Andrew Estornell (Advisor: Yevgeniy Vorobeychik, Defended in Spring 2023)
- Jizhou Huang (Advisor: Brendan Juba)
- Jennifer Ha (Advisor: Alvitta Ottley)
- Melanie Bancilhon (Advisor: Alvitta Ottley)
- Yehu Chen (Advisor: Roman Garnett and Jacob Montgomery)
- Ashwin Kumar (Advisor: William Yeoh)
- Zehao Dong (Advisor: Yixin Chen)
- Hao Liu (Advisor: Yixin Chen)
- Quan Nguyen (Advisor: Roman Getnett)

PhD Oral Qualify Committee

- Athena Tabakhi (Advisor: William Yeoh)
- Wint Hnin (Advisor: Caitlin Kelleher)
- Zihao Deng (Advisor: Brendan Juba)
- Arghya Datta (Advisor: Joshua Swamidass)
- Zhuangzhuang Zhang (Advisor: Weixiong Zhang)
- Amanda Kube (Advisor: Sanmay Das and Patrick Fowler)
- Xiaojian Xu (Advisor: Ulugbek Kamilov)
- Zhengliang Liu (Advisor: Alvitta Ottley)
- Kriti Bhattarai (Advisor: Albert Lai)
- Jizhou Huang (Advisor: Brendan Juba)
- Xiaoxiao Zhou (Advisor: Geoffrey Hugo)
- Shane Chu (Advisor: Joshua Swamidass)
- Nguyen Quan (Advisor: Roman Garnett)
- Ashwin Kumar (Advisor: William Yeoh)
- Jingwen Zhang (Advisor: Chenyang Lu)
- Hanyang Liu (Advisor: Chenyang Lu)
- Sayantan Kumar (Advisor: Philip Payne)
- Jennifer Ha (Advisor: Alvitta Ottley)
- Zehao Dong (Advisor: Yixin Chen)
- Hao Liu (Advisor: Yixin Chen)
- John Allen (Advisor: Caitlin Kelleher)
- Melanie Bancilhon (Advisor: Alvitta Ottley)
- Weijie Gan (Advisor: Ulugbek Kamilov)
- Janeen Alfauri (Advisor: Raj Jain)
- Alex DiChristogano (Advisor: Patrick Fowler and Chien-Ju Ho)
- Junlin Wu (Advisor: Yevgeniy Vorobeychik)
- Anindya Sarkar (Advisor: Yevgeniy Vorobeychik)
- Jiarui Feng (Advisor: Yixin Chen)

- Yuanhaur Chang (Advisor: Ning Zhang)
- Saugat Pandey (Advisor: Alvitta Ottley)
- Lauren Treiman (Advisor: Wouter Kool and Chien-Ju Ho)
- Kris Nilsson (Advisor: Brendan Juba)
- Michael Lanier (Advisor: Yevgeniy Vorobeychik)
- Oen McKinley (Advisor: Alvitta Ottley)
- Robert Kasumba (Advisor: Chien-Ju Ho and Dennis Barbour)

Master Thesis/Project Committee

- Jizhou Huang (Advisor: Brendan Juba)
- Adam Kern (Advisor: Alvitta Ottley)
- Weijie Gan (Advisor: Ulugbek Kamilov)
- Kevin Xie (Advisor: Dennis Barbour)
- Alexander Durgin (Advisor: Brendan Juba)
- Yuanming Xiao (Advisor: William Yeoh)
- Ruoyao Yang (Advisor: William Yeoh)
- Tyler Kirby (Advisor: Roman Garnett)
- Jing Zhang (Advisor: Alvitta Ottley)
- Yukun Li (Advisor: Ulugbek Kamilov)
- Victoria Zhang (Advisor: Carlos Ponce)
- Michael Kuo (Advisor: Yevgeniy Vorobeychik)
- Aditya Krishnamachar (Advisor: Sanjoy Baruah)
- Robert Kasumba (Advisor: Marion Neumann)
- Dian Jin (Advisor: Ulugbek Kamilov)
- Zach Zhao (Advisor: William Yeoh)
- Fankun Zeng (Advisor: Yixin Chen)
- Fengkun Yang (Advisor: William Yeoh)
- Zijie Liu (Advisor: William Yeoh)
- Yuchuan Wang (Advisor: William Yeoh)

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, 2024

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, 2023

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