

# Wei Tang

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RESEARCH INTERESTS	Human-centered machine learning, sequential decision-making with uncertainty, algorithmic economics, behavioral (social) sciences and optimization.	
APPOINTMENTS	<b>Postdoctoral Research Fellow</b> Data Science Institute, Columbia University, NYC, NY Mentor: <a href="#">Shipra Agrawal</a>	Sep 2022 – Present
EDUCATION	<b>Washington University in St. Louis</b> , St. Louis, MO Ph.D in Computer Science. Advisor: <a href="#">Chien-Ju Ho</a>	Sep 2017 – Aug 2022
	<b>Tianjin University</b> , Tianjin, China B.E. in Engineering	Sep 2013 – Jun 2017
AWARDS	<b>Best Paper Honorable Mention</b> , 9th AAAI Conference on Human Computation and Crowdsourcing (HCOMP). <b>Rising Star in Data Science</b> , Data Science Institute, University of Chicago. <b>Honors</b> (top 15% of grad. students), Washington University CSE department.	11/2021 10/2021 2019-2020, 2020-2021
WORKING PAPERS	Dynamic Pricing and Demand Learning with Averaging Reference Effect ( $\alpha$ - $\beta$ ) Shipra Agrawal, <b>Wei Tang</b>	
PUBLICATIONS	<b>(SODA'24)</b> <a href="#">Rationality-Robust Information Design: Bayesian Persuasion under Quantal Response</a> ( $\alpha$ - $\beta$ ) Yiding Feng, Chien-Ju Ho, <b>Wei Tang</b> <i>In Proc. of The 35th ACM-SIAM Symposium on Discrete Algorithms.</i>  <b>(NeurIPS'23)</b> <a href="#">Dynamic Pricing and Learning with Bayesian Persuasion</a> ( $\alpha$ - $\beta$ ) Shipra Agrawal, Yiding Feng, <b>Wei Tang</b> <i>In Proc. of The 37th Conference on Neural Information Processing Systems</i> Under preparation for <i>Operations Research</i>  <b>(NeurIPS'23)</b> <a href="#">Encoding Human Behavior in Information Design through Deep Learning</a> Guanghai Yu, <b>Wei Tang</b> , Saumik Narayanan, Chien-Ju Ho <i>In Proc. of The 37th Conference on Neural Information Processing Systems</i>  <b>(SODA'23)</b> <a href="#">Competitive Information Design for Pandora's Box</a> ( $\alpha$ - $\beta$ ) Bolin Ding, Yiding Feng, Chien-Ju Ho, <b>Wei Tang</b> , Haifeng Xu. <i>In Proc. of The 34th ACM-SIAM Symposium on Discrete Algorithms.</i> Under preparation for <i>Mathematics of Operations Research</i>  <b>(EC'22)</b> <a href="#">Online Bayesian Recommendation with No Regret</a> ( $\alpha$ - $\beta$ ) Yiding Feng, <b>Wei Tang</b> , Haifeng Xu. <i>In Proc. of The 23rd ACM conference on Economics and Computation.</i> Under review at <i>Operations Research</i>	

(AIES'22) [How Does Predictive Information Affect Human Ethical Preferences?](#)  
Saumik Narayanan, Guanghui Yu, **Wei Tang**, Chien-Ju Ho, and Ming Yin.  
*In Proc. of The 5th AAAI/ACM Conference on AI, Ethics, and Society.*

(NeurIPS'21) [Bandit Learning with Delayed Impact of Actions](#)  
**Wei Tang**, Chien-Ju Ho, Yang Liu.  
*In Proc. of The 35th Conference on Neural Information Processing Systems.*  
Also Presented at Fairness in AI/ML models at INFORMS, 2019.

(HCOMP'21) [On the Bayesian Rational Assumption in Information Design](#)  
**Wei Tang**, Chien-Ju Ho. *In Proc. of The 9th AAAI Conference on Human Computation and Crowdsourcing.*

**Best Paper Honorable Mention**

(AISTATS'21) [Linear Models are Robust Optimal Under Strategic Behavior](#)  
**Wei Tang**, Chien-Ju Ho, Yang Liu.  
*In Proc. of The 24th International Conference on Artificial Intelligence and Statistics.*

(NeurIPS'20) [Optimal Query Complexity of Secure Stochastic Convex Optimization](#)  
**Wei Tang**, Chien-Ju Ho, Yang Liu.  
*In Proc. of The 34th Conference on Neural Information Processing Systems.*

(AAMAS'20) [Differentially Private Contextual Dynamic Pricing](#)  
**Wei Tang**, Chien-Ju Ho, Yang Liu.  
*In Proc. of the 19th International Conference on Autonomous Agents and Multiagent Systems.*

(WWW'19) [Leveraging Peer Communication to Enhance Crowdsourcing](#)  
**Wei Tang**, Chien-Ju Ho, Ming Yin.  
*In Proc. of The Web Conference.*

(AAMAS'19) [Bandit Learning with Biased Human Feedback](#)  
**Wei Tang**, Chien-Ju Ho.  
*In Proc. of the 18th International Conference on Autonomous Agents and Multiagent Systems.*  
Also presented as the contributed talk at The first Workshop on Behavioral EC, June 2019.

Tumor origin detection with tissue-specific miRNA and DNA methylation markers  
**Wei Tang**, Shixiang Wan, Zhen Yang, Andrew E Teschendorff, Quan Zou. **Bioinformatics** 34.3 (2018): 398-406.

dbDEMC 2.0: updated database of differentially expressed miRNAs in human cancers  
Zhen Yang, Liangcai Wu, Anqiang Wang, **Wei Tang**, Yi Zhao, Haitao Zhao, Andrew E. Teschendorff. **Nucleic acids research** 45.D1 (2017): D812-D818.

Which statistical significance test best detects oncomiRNAs in cancer tissues? An exploratory analysis  
**Wei Tang**, Zhijun Liao, Quan Zou. **Oncotarget** 7.51 (2016): 85613.

## RESEARCH EXPERIENCE

**Research Assistant.** 2017 – 2022  
Department of Computer Science & Engineering, Washington University. *St. Louis, MO*  
Supervisor: Chien-Ju Ho

**Summer Research Intern.** Jun – Sep, 2020

	Alibaba DAMO Academy. (Remote) Mentor: Bolin Ding	Seattle, WA
TALKS	<p><b>Learning to Leverage the Information Lever: Online Recommendation and Dynamic Pricing</b> Harvard EconCS Seminar</p> <p><b>Dynamic Pricing and Learning with Bayesian Persuasion</b> INFORMS Annual Meeting, Phoenix, AZ Columbia Statistical Machine Learning Symposium</p> <p><b>Rationality-Robust Information Design: Bayesian Persuasion under Quantal Response</b> The 34th Stony Brook International Conference on Game Theory</p> <p><b>Competitive Information Design for Pandora's Box</b> Eighth Marketplace Innovation Workshop (MIW). Gaoling School of Artificial Intelligence, Renmin University of China.</p> <p><b>Online Bayesian Recommendation with No Regret</b> SIGecom Seminar Series, Virtual. INFORMS Annual Meeting, Indianapolis, IN. The 23rd ACM Conference on Economics and Computation, Boulder, CO. INFORMS Revenue Management and Pricing Section Conference, Virtual.</p> <p><b>Learning with Understanding: Human Behavior in Algorithm Design</b> The Rising Stars in Data Science workshop at the University of Chicago.</p> <p><b>Optimal Query Complexity of Secure Stochastic Convex Optimization</b> Workshop on Economics of Privacy and Data Labor (ICML'20).</p> <p><b>Linear Models are Robust Optimal Under Strategic Behavior</b> Workshop on Incentives in Machine Learning (ICML'20).</p> <p><b>Bandit Learning with Biased Human Feedback</b> Contributed Talk at The first Workshop on Behavioral EC. International Conference on Autonomous Agents and Multiagent Systems (AAMAS).</p>	<p>Oct 2023</p> <p>Oct 2023 Apr 2023</p> <p>July 2023</p> <p>May 2023 Nov 2022</p> <p>Dec 2022 Oct 2022 July 2022 June 2022</p> <p>Nov 2021</p> <p>Jun 2020</p> <p>Jun 2020</p> <p>Jun 2019 May 2019</p>
TEACHING	<p><b>Teaching Assistant</b> Human-in-the-loop Computation (CSE 518A WashU)</p>	Fall 2019
SERVICES	<p><b>Workshop Organization</b> Co-Chair, RMP session on Pricing and Information in Modern Marketplaces at INFORMS Annual Meeting 2023</p> <p><b>Journal Referee</b> Games and Economic Behavior (GEB) Operations Research (OR) Manufacturing and Service Operations Management (MSOM) Journal of Machine Learning Research (JMLR) Transactions on Economics and Computation (TEAC) Machine Learning Journal (MLJ)</p>	

### Conference Program Committee

Neural Information Processing Systems (NeurIPS): 2021–2023

International Conference on Machine Learning (ICML): 2022 – 2023

AAAI Conference on Artificial Intelligence (AAAI): 2021-2024

ACM Conference on Fairness, Accountability, and Transparency (FAccT): 2022 – 2023

Uncertainty in Artificial Intelligence (UAI): 2022

International Conference on Learning Representations (ICLR): 2022, 2024

Conference On Web And InterNet Economics: 2022

International Conference on Autonomous Agents and Multiagent Systems: 2022

International Symposium on Algorithmic Game Theory: 2022

International Conference on Artificial Intelligence and Statistics (AISTATS): 2021

### REFERENCES

#### **Prof. Shipra Agrawal**

Industrial Engineering and Operations Research  
Columbia University  
E-mail: [sa3305@columbia.edu](mailto:sa3305@columbia.edu)

#### **Prof. Yiling Chen**

Computer Science  
Harvard University  
E-mail: [yiling@seas.harvard.edu](mailto:yiling@seas.harvard.edu)

#### **Prof. Chien-Ju Ho**

Computer Science & Engineering  
Washington University in St. Louis  
E-mail: [chienju.ho@wustl.edu](mailto:chienju.ho@wustl.edu)

#### **Prof. Yang Liu**

Computer Science and Engineering  
University of California, Santa Cruz  
E-mail: [yangliu@ucsc.edu](mailto:yangliu@ucsc.edu)

#### **Prof. Haifeng Xu**

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