Toby Jia-Jun Li

Curriculum Vitae

Department of Computer Science and Engineering
College of Engineering
University of Notre Dame
Notre Dame, IN 46556 USA

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Research Interests

Human-Computer Interaction (HCI), Human-AI Interaction, Multi-Modal Interaction, Human-Centered Machine Learning, End-User Development, Programming Tools, Human-Centered Data Science.

Professional Appointments

Assistant Professor 2021–Present
Department of Computer Science and Engineering
University of Notre Dame, *Notre Dame, IN*

Director of Human-Centered Responsible AI Lab (HRAI) 2024–Present
Concurrent Assistant Professor *(by courtesy)*
Lucy Family Institute for Data & Society
University of Notre Dame, *Notre Dame, IN*

Faculty Fellow *(by courtesy)* 2025–Present
Institute for Educational Initiatives (IEI)
University of Notre Dame, *Notre Dame, IN*

Education

Ph.D. in Human-Computer Interaction 2021
Carnegie Mellon University, *Pittsburgh, PA*
Human Computer Interaction Institute, School of Computer Science
Advisor: Brad A. Myers
Committee: Tom M. Mitchell, Jeffery P. Bigham, John Zimmerman, and Philip J. Guo

B.S. with Distinction in Computer Science 2015
University of Minnesota, *Minneapolis, MN*
Department of Computer Science and Engineering
Advisor: Brent J. Hecht

Selected Honors and Awards

CHI 2025 Best Paper Award [C.42] 2025
CHI 2025 Best Paper Honorable Mention Award [C.40] 2025
IUI 2025 Best Paper Honorable Mention Award [C.36] 2025
CSCW 2024 Best Paper Award [C.24] 2024
Lucy Societal Impact Award: *Transportation Insecurity and Rideshare in South Bend, IN* 2024

AnalytiXIN Faculty Fellowship	2022
Google Research Scholar Award (*$60,000*)	2022
CMU School of Computer Science Honorable Mention Dissertation Award	2021
CHI 2021 Best Paper Honorable Mention Award [C.14]	2021
UIST 2020 Best Paper Award [C.13]	2020
Yahoo! InMind Fellowship *(Full support for 4 years*)	2016–2019
IS-EUD 2017 Best Paper Award [C.6]	2017
CHI 2017 Best Paper Honorable Mention Award [C.5]	2017
VL/HCC 2017 Doctoral Consortium Grant (*$1,200*)	2017
2016 Bosch Internet of Things Hackathon – 1st place (*$1,000*)	2016
University of Minnesota Gold Global Excellence Scholarship (*$33,680*)	2012–2015
ESRI Scholarship *($2,000)*	2014
University of Minnesota Cultural Corps Award *($150)*	2014
ACM/ICPC International Collegiate Programming Contest Word Final Qualifier	2013

Major External Grants and Gifts

(Total: $3.38M; ND's share: $2.55M; My credit: $1.23M)

NSF: Collaborative Research: SaTC: CORE: Small: Empathy-Based Privacy Education and Design through Synthetic Persona Data Generation
CNS-2426395
Lead PI: Toby Li; Additional PIs: Yaxing Yao (Virginia Tech), Tianshi Li (Northeastern University); Senior Personnel: Julia Qian
2024-2027; $599,990 (Li's credit $200,000)

NSF: EAGER: AI-powered, Targeted Instructional Support for Early Childhood Teachers
DRL-2437113
Lead PI: Jill Pentimonti; Co-PIs: Toby Li, Rick Johnson, Tricia Zucker (UTHealth Houston)
2024-2026; $299,997 (Li's credit $74,999)

NSF: FW-HTF-RM: Bridging AI Inequality in Digitally-Mediated Gig Work
CMMI-2326378
Lead PI: Toby Li; Co-PIs: Meng Jiang, Tamara Kay, Yang Yang, Jay Brockman
2023-2027; $999,980 (Li's credit $399,992)

NSF: Broadening Participation in Computing (BPC) Supplement to CCF-2211428 "Towards More Human-like AI Models of Source Code"
CCF- 2315887
Lead PI: Collin McMillan; Co-PI: Toby Li
2023-2024; $128,000

NSF: Collaborative Research: SHF: Medium: Towards More Human-like AI Models of Source Code
CCF-2211428
Lead PI: Collin McMillan (ND); Co-PIs: Toby Li and Yu Huang (Vanderbilt University)
2022-2026; $1,295,880 (ND's share $864,000; Li's credit $432,000)

Google Research Scholar Award: Effective Human-AI Collaboration with Data-Driven Models in UX Design
PI: Toby Li
2022-2023; $60,000

Other Grants and Gifts

Research Gift from Adobe Inc.
PI: Toby Li
2025; $18,000 and $3,600 in equipment

Notre Dame-IBM Technology Ethics Lab Award: Extending LLM-as-a-Judge to Generative Agents and Multi-Stakeholder Scenarios
PI: Toby Li and Diego Gómez-Zará
2025; $60,000

Notre Dame-IBM Technology Ethics Lab Award: Image Descriptions Are Less Reliable Than They Appear: Support for Blind Users Assessing Capabilities of AI-Powered Access Technology
PI: Amy Pavel (UT Austin)
Collaborator: Toby Li
2025; $60,000 (Li's share $11,000)

University of Notre Dame Strategic Framework Teaching Grant: Towards Thoughtful and Ethical Integration of Generative AI in Undergraduate Writing Education
PIs: Nathaniel Myers, Toby Li, Ranjodh Singh Dhaliwal, Patrick Clauss, Alex Ambrose
2024; $30,000

Notre Dame-IBM Technology Ethics Lab Award: Evaluation, Metrics, and Benchmarks of Large Language Models (LLMs)
PI: Wesley Hanwen Deng, Motahhare Eslami, Ken Holstein, and Jason Hong (Carnegie Mellon University)
Collaborator: Toby Li
2024; $60,000 (Li's share $10,000)

Notre Dame-IBM Technology Ethics Lab Award: Seeing The World through LLM-Colored Glasses - Detecting Biases and Deficiencies in Language Model Presentation of Underrepresented Topics
PI: Muhammad Ali, Ricardo Baeza-Yates, Shiran Dudy, Resmi Amrith, and Thulasi Tholeti (Northeastern);
Collaborator: Toby Li
2024; $60,000 (Li's share $6,000)

Notre Dame-IBM Technology Ethics Lab Award: Evaluation, Metrics, and Benchmarks of Large Language Models (LLMs)
PI: Diego Gómez-Zará; Co-PI: Toby Li
2024; $32,000

University of Notre Dame Asia Research Collaboration Grant: Creativity and Cultural Factors in Human-AI Co-Creation in Fiction Writing
PI: Toby Li; Collaborator: Ray LC (City University of Hong Kong)
2022-2023; $9,835

Google Cloud Research Credit Grant: Procedure Generalization in Interactive Task Learning
PI: Toby Li
2021-2022; $5,000 in credits

Google Cloud Research Credit Grant: Screen2Vec: A New Method for Embedding GUI Screens in Vector Spaces
PI: Toby Li
2020-2021; $1,000 in credits

Google Cloud Research Credit Grant: SUGILITE: A Multi-Modal Agent that Learns Tasks from Natural Language and Demonstrations

PI: Toby Li
2019-2020; $2,000 in credits

AnalytiXIN Idea Discovery Proposal: Human-AI Collaboration in Data Annotation
PI: Toby Li
2022; $13,734

NVIDIA Academic Hardware Grant: Generating Immersive VR Scenes with Spatial Audio from Monaural 2D Videos
PI: Toby Li; Student: Zheng Ning
2022; $4,650 in equipment

Major Refereed Conference Papers

(Underlines indicate students under my supervision)

[C.48] **GLITTER: An AI-assisted Platform for Material-Grounded Asynchronous Discussion in Flipped Learning**
Weirui Peng*, Yinuo Yang*, Zheng Zhang, and **Toby Jia-Jun Li**
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2025)

[C.47] **AROMA: Mixed-Initiative AI Assistance for Non-Visual Cooking by Grounding Multimodal Information Between Reality and Videos**
Zheng Ning, Leyang Li, Daniel Killough, JooYoung Seo, Patrick Carrington, Yapeng Tian, Yuhang Zhao, Franklin Mingzhe Li, and **Toby Jia-Jun Li**
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2025)

[C.46] **Why am I seeing this: Democratizing End User Auditing for Online Content Recommendations**
Chaoran Chen, Leyang Li, Luke Cao, Yanfang Ye, Tianshi Li, Yaxing Yao, and **Toby Jia-Jun Li**
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2025)

[C.45] **Leveraging Variation Theory in Counterfactual Data Augmentation for Optimized Active Learning**
Simret Araya Gebreegziabher, Kuangshi Ai, Zheng Zhang, Elena L. Glassman, and **Toby Jia-Jun Li**
Findings of the 63rd Annual Meeting of the Association for Computational Linguistics (ACL Findings 2025)

[C.44] **Towards a Design Guideline for RPA Evaluation: A Survey of Large Language Model-Based Role-Playing Agents**
Chaoran Chen, Bingsheng Yao, Ruishi Zou, Wenyue Hua, Weimin Lyu, **Toby Jia-Jun Li**, and Dakuo Wang
Findings of the 63rd Annual Meeting of the Association for Computational Linguistics (ACL Findings 2025)

[C.43] **MetricMate: An Interactive Tool for Generating Evaluation Criteria for LLM-as-a-Judge Workflow**
Simret Araya Gebreegziabher, Charles Chiang, Zichu Wang, Zahra Ashktorab, Michelle Brachman, Werner Geyer, **Toby Jia-Jun Li**, and Diego Gómez-Zará
Proceedings of the 3rd Symposium on Human-Computer Interaction for Work (CHIWORK 2025)

[C.42] **Supporting Co-Adaptive Machine Teaching through Human Concept Learning and Cognitive Theories**
Simret Araya Gebreegziabher, Yukun Yang, Elena L. Glassman, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2025)
Best Paper Award

[C.41] **LADICA: A Large Shared Display Interface for Generative AI Cognitive Assistance in Co-located Team Collaboration**
Zheng Zhang, Weirui Peng, Xinyue Chen, Luke Cao, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2025)

[C.40] **Hashtag Re-appropriation For Audience Control on Recommendation-driven Social Media Xiaohongshu**
Ruyuan Wan, Lingbo Tong, Tiffany Knearem, **Toby Jia-Jun Li**, Ting-Hao Kenneth Huang, and Qunfang Wu
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2025)
Best Paper Honorable Mention Award

[C.39] **From Operation to Cognition: Automatic Modeling Cognitive Dependencies from User Demonstrations for GUI Task Automation**
Yiwen Yin, Yu Mei, Chun Yu, **Toby Jia-Jun Li**, Aamir Khan Jadoon, Sixiang Cheng, Weinan Shi, Mohan Chen, and Yuanchun Shi
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2025)

[C.38] **CLEAR: Towards Contextual LLM-Empowered Privacy Policy Analysis and Risk Generation for Large Language Model Applications**
Chaoran Chen, Daodao Zhou, Yanfang Ye, **Toby Jia-Jun Li**, and Yaxing Yao
Proceedings of the 30th ACM Conference on Intelligent User Interfaces (IUI 2025)

[C.37] **Limitations of the LLM-as-a-Judge Approach for Evaluating LLM Outputs in Expert Knowledge Tasks**
Annalisa Szymanski, Noah Ziems, Heather A. Eicher-Miller, **Toby Jia-Jun Li**, Meng Jiang, and Ronald A. Metoyer
Proceedings of the 30th ACM Conference on Intelligent User Interfaces (IUI 2025)

[C.36] **Unequal Opportunities: Examining the Bias in Geographical Recommendations by Large Language Models**
Shiran Dudy, Thulasi Tholeti, Resmi Ramachandranpillai, Ali Muhammad, **Toby Jia-Jun Li**, and Ricardo Baeza-Yates
Proceedings of the 30th ACM Conference on Intelligent User Interfaces (IUI 2025)
Best Paper Honorable Mention Award

[C.35] **"I'm categorizing LLM as a productivity tool": Examining ethics of LLM use in HCI research practices**
Shivani Kapania, Ruiyi Wang, **Toby Jia-Jun Li**, Tianshi Li, and Hong Shen
Proceedings of the ACM on Human-Computer Interaction (CSCW 2025)

[C.34] **Careful About What App Promotion Ads Recommend! Detecting and Explaining Malware Promotion via App Promotion Graph**
Shang Ma, Chaoran Chen, Shao Yang, Shifu Hou, **Toby Jia-Jun Li**, Xusheng Xiao, Tao Xie, and Yanfang Ye
The Network and Distributed System Security Symposium (NDSS 2025)

[C.33] **Sketchar: Supporting Character Design and Illustration Prototyping Using Generative AI**
Long Ling, Xinyi Chen, Ruoyu Wen, **Toby Jia-Jun Li**, and Ray LC
Proceedings of the ACM on Human-Computer Interaction (CHI PLAY 2024)

[C.32] **SQLucid: Grounding Natural Language Database Queries with Interactive Explanations**
Yuan Tian, Jonathan Kummerfeld, **Toby Jia-Jun Li**, and Tianyi Zhang
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2024)

[C.31] **MIMOSA: Human-AI Co-Creation of Computational Spatial Audio Effects on Videos**
Zheng Ning, Zheng Zhang, Jerrick Ban, Kaiwen Jiang, Ruohong Gan, Yapeng Tian, and **Toby Jia-Jun Li**
Proceedings of the 16th ACM Conference on Creativity and Cognition (C&C 2024)

[C.30] **EyeTrans: Merging Human and Machine Attention for Neural Code Summarization**
Yifan Zhang, Jiliang Li, Zachary Karas, Aakash Bansal, **Toby Jia-Jun Li**, Collin McMillan, Kevin Leach, and Yu Huang
Proceedings of the ACM International Conference on the Foundations of Software Engineering (FSE 2024)

[C.29] **An Empathy-Based Sandbox Approach to Bridge the Privacy Gap among Attitudes, Goals, Knowledge, and Behaviors**
Chaoran Chen, Weijun Li, Wenxin Song, Fanny Ye, Yaxing Yao, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2024)

[C.28] **SPICA: Interactive Video Content Exploration through Augmented Audio Descriptions for Blind or Low-Vision Viewers**
Zheng Ning, Brianna L. Wimer, Kaiwen Jiang, Keyi Chen, Jerrick Ban, Yapeng Tian, Yuhang Zhao, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2024)

[C.27] **Luminate: Structured Generation and Exploration of Design Space with Large Language Models for Human-AI Co-Creation**
Sangho Suh*, Meng Chen*, Bryan Min, **Toby Jia-Jun Li**, and Haijun Xia
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2024)

[C.26] **CollabCoder: A Lower-barrier, Rigorous Workflow for Inductive Collaborative Qualitative Analysis with Large Language Models**
Jie Gao, Yuchen Guo, Gionnieve Lim, Tianqin Zhang, Zheng Zhang, **Toby Jia-Jun Li**, and Simon Perrault
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2024)

[C.25] **AutoDroid: LLM-powered Task Automation in Android**
Hao Wen, Yuanchun Li, Guohong Liu, Shanhui Zhao, Tao Yu, **Toby Jia-Jun Li**, Shiqi Jiang, Yunhao Liu, Yaqin Zhang, and Yunxin Liu
Proceedings of the 30th Annual International Conference on Mobile Computing and Networking (MobiCom '24)

[C.24] **From Awareness to Action: Exploring End-User Empowerment Interventions for Dark Patterns in UX**
Yuwen Lu, Chao Zhang, Yuewen Yang, Yaxing Yao, and **Toby Jia-Jun Li**
Proceedings of the ACM on Human-Computer Interaction (CSCW 2024)
Best Paper Award

[C.23] **Interactive Text-to-SQL Generation via Editable Step-by-Step Explanations**
Yuan Tian, Zheng Zhang, Zheng Ning, **Toby Jia-Jun Li**, Jonathan Kummerfeld, and Tianyi Zhang
Proceedings of the the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP 2023)

[C.22] **VISAR: A Human-AI Argumentative Writing Assistant with Visual Programming and Rapid Draft Prototyping**
Zheng Zhang, Jie Gao, Ranjodh Singh Dhaliwal, and **Toby Jia-Jun Li**
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2023)

[C.21] **PEANUT: A Human-AI Collaborative Tool for Annotating Audio-Visual Data**
Zheng Zhang*, Zheng Ning*, Chenliang Xu, Yapeng Tian, and **Toby Jia-Jun Li**
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2023)

[C.20] **PaTAT: Human-AI Collaborative Qualitative Coding with Explainable Interactive Rule Synthesis**
Simret Araya Gebreegziabher*, Zheng Zhang*, Xiaohang Tang, Yihao Meng, Elena Glassman, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2023)

[C.19] **An Empirical Study of Model Errors and User Error Discovery and Repair Strategies in Natural Language Database Queries**
Zheng Ning*, Zheng Zhang*, Tianyi Sun, Yuan Tian, Tianyi Zhang, and **Toby Jia-Jun Li**
Proceedings of the 28th ACM Conference on Intelligent User Interfaces (IUI 2023)

[C.18] **A Bottom-Up End-User Intelligent Assistant Approach to Empower Gig Workers against AI Inequality**
Toby Jia-Jun Li, Yuwen Lu, Jaylexia Clark, Meng Chen, Victor Cox, Meng Jiang, Yang Yang, Tamara Kay, Danielle Wood, and Jay Brockman
Proceedings of the 1st Symposium on Human-Computer Interaction for Work (CHIWORK 2022)

[C.17] **It is AI's Turn to Ask Human a Question: Question and Answer Pair Generation for Children Storybooks in FairytaleQA Dataset**
Bingsheng Yao, Dakuo Wang, Tongshuang Wu, Zheng Zhang, **Toby Jia-Jun Li**, Mo Yu, and Ying Xu
Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022)

[C.16] **Fantastic Questions and Where to Find Them: FairytaleQA–An Authentic Dataset for Narrative Comprehension**
Ying Xu, Dakuo Wang, Mo Yu, Daniel Ritchie, Bingsheng Yao, Tongshuang Wu, Zheng Zhang, **Toby Jia-Jun Li**, Nora Bradford, Branda Sun, Tran Hoang, Yisi Sang, Yufang Hou, Xiaojuan Ma, Diyi Yang, Nanyun Peng, Zhou Yu, and Mark Warschauer
Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022)

[C.15] **StoryBuddy: A Human-AI Collaborative Agent for Parent-Child Interactive Storytelling with Flexible Parent Involvement**
Zheng Zhang, Ying Xu, Yanhao Wang, Bingsheng Yao, Daniel Ritchie, Tongshuang Wu, Mo Yu, Dakuo Wang, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022)

[C.14] **Screen2Vec: Semantic Embedding of GUI Screens and GUI Components**
Toby Jia-Jun Li, Lindsay Popowski, Tom M. Mitchell, and Brad A. Myers
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2021)
Best Paper Honorable Mention Award

[C.13] **Multi-Modal Repairs of Conversational Breakdowns in Task-Oriented Dialogs**
Toby Jia-Jun Li, Jingya Chen, Haijun Xia, Tom M. Mitchell, and Brad A. Myers
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2020)
Best Paper Award

[C.12] **Geno: A Developer Tool for Authoring Multimodal Interaction on Existing Web Applications**
Ritam Sarmah, Yunpeng Ding, Di Wang, Cheuk Yin Phipson Lee, **Toby Jia-Jun Li**, and Xiang 'Anthony' Chen
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2020)

[C.11] **Interactive Task Learning from GUI-Grounded Natural Language Instructions and Demonstrations**
Toby Jia-Jun Li, Tom M. Mitchell, and Brad A. Myers
Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL 2020): System Demonstrations

[C.10] **Privacy-Preserving Script Sharing in GUI-based Programming-by-Demonstration Systems**
Toby Jia-Jun Li, Jingya Chen, Brandon Canfield, and Brad A. Myers
Proceedings of the ACM on Human-Computer Interaction (CSCW 2020)

[C.9] **PUMICE: A Multi-Modal Agent that Learns Concepts and Conditionals from Natural Language and Demonstrations**
Toby Jia-Jun Li, Marissa Radensky, Justin Jia, Kirielle Singarajah, Tom M. Mitchell, and Brad A. Myers
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2019)

[C.8] **A Multi-Modal Interface for Specifying Data Descriptions in Programming by Demonstration Using Verbal Instructions**
Toby Jia-Jun Li, Igor Labutov, Xiaohan Nancy Li, Xiaoyi Zhang, Wenze Shi, Wanling Ding, Tom M. Mitchell, and Brad A. Myers
Proceedings of the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2018)

[C.7] **KITE: Building Conversational Bots from Mobile Apps**
Toby Jia-Jun Li and Oriana Riva
Proceedings of the the ACM Conference on Mobile Systems, Applications, and Services (MobiSys 2018)

[C.6] **Programming IoT Devices by Demonstration Using Mobile Apps**
Toby Jia-Jun Li, Yuanchun Li, Fanglin Chen, and Brad A. Myers
International Symposium on End User Development (IS-EUD 2017). LNCS, vol. 10303
Best Paper Award

[C.5] **SUGILITE: Creating Multimodal Smartphone Automation by Demonstration**
Toby Jia-Jun Li, Amos Azaria, and Brad A. Myers
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2017)
Best Paper Honorable Mention Award

[C.4] **PrivacyStreams: Enabling Transparency in Personal Data Processing for Mobile Apps**
Yuanchun Li, Fanglin Chen, **Toby Jia-jun Li**, Yao Guo, Gang Huang, Matthew Fredrikson, Yuvraj Agarwal, and Jason I. Hong
Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (PACM IMWUT / UbiComp 2017)

[C.3] **Not at Home on the Range: Peer Production and the Urban/Rural Divide**
Isaac Johnson, Yilun Lin, **Toby Jia-Jun Li,** Andrew Hall, Aaron Halfaker, Johannes Schöning, and Brent Hecht
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2016)

[C.2] **Leveraging Advances in Natural Language Processing to Better Understand Tobler's First Law of Geography**
Toby Jia-Jun Li, Shilad Sen, and Brent Hecht
Proceedings of the ACM Conference on Advances in Geographic Information Systems (SIGSPATIAL 2014)

[C.1] **WikiBrain: Democratizing Computation on Wikipedia**
Shilad Sen, **Toby Jia-Jun Li,** WikiBrain Team, and Brent Hecht
Proceedings of the International Symposium on Open Collaboration (OpenSym / WikiSym 2014)

Major Refereed Journal Papers

[J.3] **Programmer Visual Attention During Context-Aware Code Summarization**
Robert Wallace, Aakash Bansal, Zachary Karas, Ningzhi Tang, Yu Huang, **Toby Jia-Jun Li**, and Collin McMillan
IEEE Transactions on Software Engineering (TSE), 2025

[J.2] **A Tale of Two Comprehensions? Analyzing Student Programmer Attention during Code Summarization**
Zachary Karas, Aakash Bansal, Yifan Zhang, **Toby Jia-Jun Li**, Collin McMillan, and Yu Huang
ACM Transactions on Software Engineering and Methodology (TOSEM), 2024

[J.1] **Insights into Natural Language Database Query Errors: From Attention Misalignment to User Handling Strategies**
Zheng Ning, Yuan Tian, Zheng Zhang, Tianyi Zhang, and **Toby Jia-Jun Li**
ACM Transactions on Interactive Intelligent Systems (TIIS), 2024

Refereed Workshop Papers

[W.13] **Toward a Human-Centered Evaluation Framework for Trustworthy LLM-powered GUI Agents**
Chaoran Chen, Zhiping Zhang, Ibrahim Khalilov, Bingcan Guo, Simret Araya Gebreegziabher, Yanfang Ye, Yaxing Yao, Ziang Xiao, Tianshi Li, and **Toby Jia-Jun Li**
CHI 2025 Workshop on Human-Centered Evaluation and Auditing of Language Models (HEAL)

[W.12] **MetricMate: An Interactive Tool for Generating Evaluation Criteria for LLM-as-a-Judge Workflow**
Simret Araya Gebreegziabher, Charles Chiang, Zichu Wang, Zahra Ashktorab, Michelle Brachman, Werner Geyer, **Toby Jia-Jun Li**, and Diego Gómez-Zará
IUI 2025 Workshop on Human-AI Co-Creation with Generative Models (HAI-GEN)

[W.11] **Evaluating the LLM Agents for Simulating Humanoid Behavior**
Chaoran Chen, Bingsheng Yao, Yanfang Ye, Dakuo Wang, and **Toby Jia-Jun Li**
CHI 2024 Workshop on Human-Centered Evaluation and Auditing of Language Models (HEAL)

[W.10] **Prompt Learning Unlocked for App Promotion in the Wild**
Zhongyu Ouyang, Shifu Hou, Shang Ma, Chaoran Chen, Chunhui Zhang, **Toby Jia-Jun Li**, Xusheng Xiao, Chuxu Zhang, and Yanfang Ye
NeurIPS 2023 Workshop on New Frontiers in Graph Learning (GLFrontiers)

[W.9] **Exploring Mobile UI Layout Generation using Large Language Models Guided by UI Grammar**
Yuwen Lu, Ziang Tong, Anthea Qinyi Zhao, Chengzhi Zhang, and **Toby Jia-Jun Li**
ICML 2023 Workshop on Artificial Intelligence and Human-Compter Interaction (AI&HCI)

[W.8] **Using Large Generative Models for Storyboarding: Challenges and Goals**
Zheng Ning, Dingzeyu Li, and **Toby Jia-Jun Li**
CHI 2023 Workshop on Intelligent and Interactive Writing Assistants (In2Writing)

[W.7] **An Empirical Study of Developer Behaviors for Validating and Repairing AI-Generated Code**
Ningzhi Tang*, Meng Chen*, Zheng Ning, Aakash Bansal, Yu Huang, Collin McMillan, and **Toby Jia-Jun Li**
The 13th Annual Workshop on the Intersection of PL and HCI (PLATEAU 2023)

[W.6] **MIMOSA: Human-in-the-Loop Generation of Spatial Audio from Videos with Monaural Audio**
Zheng Ning*, Zheng Zhang*, Jerrick Ban, Kaiwen Jiang, Ruohong Gan, Yapeng Tian, and **Toby Jia-Jun Li**
ECCV 2022 Workshop on Visual Learning of Sounds in Spaces (AV4D)

[W.5] **AI as an Active Writer: Interaction Strategies with Generated Text in Human-AI Collaborative Fiction Writing**
Daijin Yang, Yanpeng Zhou, Zhiyuan Zhang, **Toby Jia-Jun Li**, and Ray LC
IUI 2022 Workshop on Human-AI Co-Creation with Generative Models (HAI-GEN 2022)

[W.4] **Building an Interactive Storytelling Conversational Agent through Parent-AI Collaboration**
Zheng Zhang, Ying Xu, Yanhao Wang, Bingsheng Yao, Daniel Ritchie, Tongshuang Wu, Mo Yu, Dakuo Wang, and **Toby Jia-Jun Li**
CSCW 2021 Workshop on Inclusive and Collaborative Child-Facing Voice Technologies (CUI@CSCW)

[W.3] **Towards Effective Human-AI Collaboration in GUI-Based Interactive Task Learning Agents**
Toby Jia-Jun Li, Jingya Chen, Tom M. Mitchell, and Brad A. Myers
CHI 2020 Workshop on Artificial Intelligence for HCI: A Modern Approach (AI4HCI)

[W.2] **Interactive Task and Concept Learning from Natural Language Instructions and GUI Demonstrations**
Toby Jia-Jun Li, Marissa Radensky, Justin Jia, Kirielle Singarajah, Tom M. Mitchell, and Brad A. Myers
AAAI 2020 Workshop on Intelligent Process Automation (IPA-20)

[W.1] **A Multi-Modal Approach to Concept Learning in Task Oriented Conversational Agents**
Toby Jia-Jun Li, Marissa Radensky, Tom M. Mitchell, and Brad A. Myers
CHI 2019 Workshop on Conversational Agents: Acting on the Wave of Research and Development

Lightly-Reviewed Publications and Extended Abstracts

[L.18] **UXAgent: An LLM Agent-Based Usability Testing Framework for Web Design**
Yuxuan Lu, Bingsheng Yao, Hansu Gu, Jing Huang, Jessie Wang, Laurence Li, Jiri Gesi, Qi He, **Toby Jia-Jun Li**, and Dakuo Wang
Extended Abstracts of the 2025 ACM Conference on Human Factors in Computing Systems (CHI EA '25)

[L.17] **MOCHA: Model Optimization through Collaborative Human-AI Alignment**
Simret Araya Gebreegziabher, Elena L. Glassman, and **Toby Jia-Jun Li**
Adjunct Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2024)

[L.16] **Challenges and Opportunities of LLM-Based Synthetic Personae and Data in HCI**
Mirjana Prpa, Giovanni Troiano, Bingsheng Yao, **Toby Jia-Jun Li**, Dakuo Wang, Hansu Gu
CSCW'24 Companion: Companion Publication of the 2024 Conference on Computer Supported Cooperative Work and Social Computing

[L.15] **CoCo Matrix: Taxonomy of Cognitive Contributions in Co-writing with Intelligent Agents**
Ruyuan Wan*, Simret Gebreegziabher*, **Toby Jia-Jun Li**, and Karla Badillo-Urquiola
Extended Abstracts of the 16th ACM Conference on Creativity and Cognition (C&C 2024)

[L.14] **A Taxonomy for Human-LLM Interaction Modes: An Initial Exploration**
Jie Gao, Simret Gebreegziabher, Kenny Choo, **Toby Jia-Jun Li**, Simon Perrault, Thomas Malone
Extended Abstracts of the 2024 ACM Conference on Human Factors in Computing Systems (CHI EA '24)

[L.13] **CodeGRITS: A Research Toolkit for Developer Behavior and Eye Tracking in IDE**
Ningzhi Tang, Junwen An, Meng Chen, Aakash Bansal, Yu Huang, Collin McMillan, **Toby Jia-Jun Li**
2024 IEEE/ACM 46th International Conference on Software Engineering (ICSE '24): Demo Track

[L.12] **Computational Methodologies for Understanding, Automating, and Evaluating User Interfaces**
Yue Jiang, Yuwen Lu, Tiffany Knearem, Clara Kliman-Silver, Christof Lutteroth, **Toby Jia-Jun Li**, Jeffery Nichols, and Wolfgang Stuerzlinger
Extended Abstracts of the 2024 ACM Conference on Human Factors in Computing Systems (CHI EA '24)

[L.11] **Future Advising: Can Academic Advising be Replaced by ChatGPT or Artificial Intelligence?**
Julia Qian and **Toby Jia-Jun Li**
National Academic Advising Association (NACADA) 2023 Annual Conference

[L.10] **Modeling Programmer Attention as Scanpath Prediction**
Aakash Bansal, Chia-Yi Su, Zachary Karas, Yifan Zhang, Yu Huang, **Toby Jia-Jun Li**, and Collin McMillan
The 38th IEEE/ACM International Conference on Automated Software Engineering (ASE 2023): The New Ideas and Emerging Results (NIER) Track

[L.9] **DiffCoder: A GPT-Powered WorkFlow for Collaborative Qualitative Analysis**
Jie Gao, Yuchen Guo, **Toby Jia-Jun Li**, and Simon Perrault
CSCW'23 Companion: Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing

[L.8] **Designing for AI-Powered Social Computing Systems**
Gionnieve Lim, Hyunwoo Kim, Yoonseo Choi, **Toby Jia-Jun Li**, Chinmay Kulkarni, Hariharan Subramonyam, Joseph Seering, Michael S. Bernstein, Amy X. Zhang, Elena Glassman, Simon Perrault, and Juho Kim
CSCW'23 Companion: Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing

[L.7] **Shaping the Emerging Norms of Using Large Language Models in Social Computing Research**
Hong Shen, Tianshi Li, **Toby Jia-Jun Li**, Joon Sung Park, and Diyi Yang
CSCW'23 Companion: Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing

[L.6] **SHAI 2023: Workshop on Designing for Safety in Human-AI Interactions**
Nitesh Goyal, Sungsoo Ray Hong, Regan Mandryk, **Toby Jia-Jun Li**, Kurt Luther, and Dakuo Wang
IUI 2023 Companion: The 28th ACM Conference on Intelligent User Interfaces

[L.5] **The Future of Computational Approaches for Understanding and Adapting User Interfaces**
Yue Jiang, Yuwen Lu[@], Christof Lutteroth, **Toby Jia-Jun Li**, Jeffrey Nichols, and Wolfgang Stuerzlinger
Extended Abstracts of the 2023 ACM Conference on Human Factors in Computing Systems (CHI EA '23)

[L.4] **Computational Approaches for Understanding, Generating, and Adapting User Interfaces**
Yue Jiang, Yuwen Lu[@], Jeffrey Nichols, Wolfgang Stuerzlinger, Chun Yu, Christof Lutteroth, Yang Li, Ranjitha Kumar, and **Toby Jia-Jun Li**
Extended Abstracts of the 2022 ACM Conference on Human Factors in Computing Systems (CHI EA '22)

[L.3] **Bridging the Gap Between UX Practitioners' Work Practices and Machine-Learning-Enabled Design Support Tools**
Yuwen Lu[@], Chengzhi Zhang, Iris Zhang, and **Toby Jia-Jun Li**
Extended Abstracts of the 2022 ACM Conference on Human Factors in Computing Systems (CHI EA '22)

[L.2] **How End Users Express Conditionals in Programming by Demonstration for Mobile Apps**
Marissa Radensky, **Toby Jia-Jun Li**, and Brad A. Myers
IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2018) Poster Track

[L.1] **End User Mobile Task Automation using Multimodal Programming by Demonstration**
Toby Jia-Jun Li
IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2017) Graduate Consortium

Book Sections

[B.3] **Demonstration+Natural Language: Multimodal Interfaces for GUI-based Interactive Task Learning Agents**
Toby Jia-Jun Li, Tom M. Mitchell, and Brad A. Myers
Chapter of *Artificial Intelligence for Human Computer Interaction: A Modern Approach.* Springer. 2021.

[B.2] **Teaching Agents When They Fail: End User Development in Goal-Oriented Conversational Agents**
Toby Jia-Jun Li, Igor Labutov, Brad A. Myers, Amos Azaria, Alexander Rudnicky, and Tom M. Mitchell
Chapter of *Studies in Conversational UX Design.* Springer. 2018.

[B.1] **Making End User Development More Natural**
Brad A. Myers, Amy Ko, Chris Scaffidi, Stephen Oney, YoungSeok Yoon, Kerry Chang, Mary Beth Kery, and **Toby Jia-Jun Li**
Chapter of *New Perspectives in End-User Development*. Springer. 2017.

Patents

[P.1] **Automatically Generating Conversational Services from a Computing Application**
Oriana Riva, Jason Kace, Doug Burger, and **Toby Jia-Jun Li**
U.S. Patent 10,705,892. Granted July 7, 2020; Filed June 7, 2018.

Relevant Research Experience

Engineering Implementation Consultant Aug. 2017–Dec. 2017
Research Intern May. 2017–Aug. 2017
Microsoft Research, Redmond, WA
Mentor: Dr. Oriana Riva

Research Assistant Jan. 2013–Aug. 2015
GroupLens Research, University of Minnesota

Teaching Experience

Instructor, *CSE 40748/60748: Human-AI Collaborative Systems* Spring 2024, 2025
Department of Computer Science and Engineering, University of Notre Dame

Instructor, *CSE 40424: Human-Computer Interaction* Spring 2023
Department of Computer Science and Engineering, University of Notre Dame

Instructor, *CSE 60427: Human-Centered Computing Research* Fall 2021–2025
Department of Computer Science and Engineering, University of Notre Dame

Teaching Assistant, *05-391 / 05-891: Designing Human-Centered Software* Spring 2019
Human-Computer Interaction Institute, Carnegie Mellon University

Teaching Assistant, *05-410 / 05-610: User-Centered Research & Evaluation* Fall 2018
Human-Computer Interaction Institute, Carnegie Mellon University

Teaching Staff, *CSCI 5715: From GPS and Google Maps to Spatial Computing* Fall 2014
Coursera MOOC & Dept. of Computer Science and Engineering, Univ. of Minnesota

Teaching Assistant, *CSCI 2011: Discrete Structures of Computer Science* Fall 2013, Spring 2014
Department of Computer Science and Engineering, University of Minnesota

Students Advised after joining Notre Dame

Doctoral Students

Yinuo Yang (Ph.D. in CSE) 2025–Present

Sumin Hong (Ph.D. in CSE) 2024–Present

Ningzhi Tang (Ph.D. in CSE) 2023–Present

Edison Innovation Fellowship

Chaoran Chen (Ph.D. in CSE) 2022–Present

Yuwen Lu (Ph.D. CSE) 2021–Present

Lucy Graduate Scholar

Zheng Ning (Ph.D. in CSE) 2021–Present

Simret Araya Gebreegziabher (Ph.D. in CSE) 2021–Present

IBM Ph.D. Fellowship

Zheng Zhang (Ph.D. in CSE, first position Applied Scientist at Adobe) 2021–2025

Doctoral Thesis Committee at Notre Dame

Brianna Wimer (Ph.D. in CSE)	Expected Graduation in 2026
Ken Sible (Ph.D. in CSE)	Expected Graduation in 2026
Adnan Hoq (Ph.D. in CSE)	Expected Graduation in 2026
Chia-Yi Su (Ph.D. in CSE)	Expected Graduation in 2026
Mengxia Yu (Ph.D. in CSE)	Expected Graduation in 2026
Theodore Chambers (Ph.D. in CSE)	Expected Graduation in 2026
Aarohi Srivastava (Ph.D. in CSE)	Expected Graduation in 2025
Lingbo Tong (Ph.D. in CSE and Psychology, first position Assistant Professor at University of Wisconsin–Madison)	Graduated in 2025
Qianlong Wen (Ph.D. in CSE, first position at TikTok)	Graduated in 2025
Zhihan Zhang (Ph.D. in CSE, first position Applied Scientist at Amazon)	Graduated in 2025
Joe Germino (Ph.D. in CSE)	Graduated in 2025
Oghenemaro (Maro) Anuyah (Ph.D. in CSE, first position Researcher at Microsoft)	Graduated in 2025
Aakash Bansal (Ph.D. in CSE, first position Assistant Professor at LSU)	Graduated in 2024
Gonzalo Martinez (Ph.D. in CSE, first position at John Deere)	Graduated in 2022
Sakib Haque (Ph.D. in CSE, first position at Qualtrics)	Graduated in 2022

External Thesis Committee

Minhyuk Ko (Ph.D in Computer Science, Virginia Tech)	Expected Graduation in 2026
Hyungyu Shin (Ph.D, School of Computing, KAIST)	Graduated in 2025
Sangwook Lee (M.S., School of Computing, KAIST, first position Ph.D. Student at Virginia Tech)	Graduated in 2023

Undergraduate Students

David Meininger (B.S. in CS)	2025
Louis Cao (B.S. in CS)	2025
Brandon Forseth (B.S. in CS)	2025
Rene Alzina (B.S. in CS)	2025
Biruk Molla (B.S. in CS)	2025
Aynaz Namik (B.S. in CS)	2024–2025
Xavier Briggs (B.S. in CS)	2024–2025
Matthew McCollum (B.A. in Economics and Data Science)	2024–2025
Mykhaylo Severinov (Ivy Tech, CS)	2024–2025
Luke Cao (B.S. in CS)	2023–2025
Yewon Oh (B.S. in CS, first position at Apple)	2024
Tori Banda (B.S. in CS)	Summer 2023
Ava DeCroix (B.A. in CS, first position at Visa)	2023
Tommy Rozgonyi (B.S. in CS)	2022
Michael Bsales (B.A. in CS, first position at Carbon Accountant)	2022

Ryan Pairitz (B.S. in CS, first position at Pruun) 2022
Jerrick Ban (B.S. in CS, first position at Pariveda Solutions) 2022–2023
Ziang Tong (B.S. in CS, first position at Amazon) 2022–2024
Victor Cox (B.S. in CS, first position at Capital One) 2021–2022
Meng Chen (B.S. in CS and Philosophy, first position Ph.D. student at UT Austin) 2021–2024

Visiting Students

Jingyu Tang (Huazhong University of Science and Technology) Summer 2025
Zixin Guo (University of Cambridge) Summer 2025
Jiawen Li (University of Michigan) Summer 2025
Zichu Wang (Carnegie Mellon University) Summer 2024
Kuangshi Ai (Fudan University, first position Ph.D. student at Notre Dame) Summer 2023
Wenxin Song (Chinese U. of HK., first position M.S. student at Columbia) Summer 2023
Keyi Chen (UCSD) Summer 2023
Qianhui Zhao (Beijing U. of Chem. Tech., first position M.S. student at CMU) Summer 2023
Haoming Ma (Sun Yat-sen University, first position M.S. student at Columbia) Summer 2023
Sangwook Lee (Visiting M.S. student from KAIST, first position Ph.D. student at Virginia Tech) Summer 2023
Weijun Li (Visting M.S. student from Zhejiang University, first position Ph.D. student at UC Irvine) Summer 2023
Jie Gao (Visiting Ph.D. student from Singapore U. of Tech. and Design, first position Postdoc at Singapore-MIT Alliance for Research and Technology) Spring 2023
Yuewen Yang (NYU, first position M.S. student at Cornell Tech) Summer 2022
Yihao Meng (Xi'an Jiaotong University, first position Ph.D. student at HKUST) Summer 2022
Chao Zhang (Zhejiang University, first position Ph.D. student at Cornell) Summer 2022
Xiaohang Tang (Liverpool University, first position Ph.D. student at Virginia Tech) Summer 2022
Ningzhi Tang (SUSTech, first position Ph.D. student at Notre Dame) Summer 2022

Students Mentored Prior to Notre Dame

Tiffany Cai (CMU, first position at Google X) Spring 2017
- *Worked on a new mobile keyboard for recording text entries in demonstration.*

Jeremy Wei (CMU, first position at Flatiron Health) Spring 2017
- *Worked on identifying crucial actions in demonstrated scripts.*

Xiaohan Nancy Li (CMU, first position at Microsoft) Fall 2017
- *Worked on representing and querying snapshots of mobile GUIs.*

Wenze Shi (CMU, first position at Facebook) Spring 2018
- *Worked on extracting semantic entities from mobile GUIs.*

Wanling Ding (CMU, first position at Shopee) Spring 2018
- *Worked on generating user friendly representations for demonstrated scripts.*

Marissa Radensky (Amherst College, REU at CMU, first position Ph.D. student at UW) Summer 2018
- *Worked on supporting conditionals in programming by demonstration.*

Justin Jia (CMU, first position at Citadel) Spring 2019
- Worked on semantic parsing for concept instructions.

Kirielle Singarajah (CMU, first position at Google) Spring 2019
- Worked on semantic parsing for concept instructions.

Brandon Canfield (Yale University, REU at CMU) Summer 2019
- Worked on enabling privacy-preserving sharing of end user developed scripts.

William Timkey (Cornell University, REU at CMU, first position Ph.D. student at NYU) Summer 2019
- Worked crowd-sourced data collection for semantic parsers.

Jingya Chen (CMU, first position at MIT, now at Microsoft Research) Summer 2019–2020
- Worked on multi-modal error handling for speech interfaces.

Lindsay Popowski (Harvey Mudd, REU at CMU, first position Ph.D. student at Stanford) Summer 2020
- Worked on the semantic embedding of GUI screens and components.
CRA 2021 Outstanding Undergraduate Researcher Award

Vanessa Hu (Harvard University, REU intern at CMU) Summer 2020
- Worked on the fuzzy lexicon matching and time expression parsing in semantic parsers.

Selected Talks, Panels, and Seminars

[T.17] **Human-Centered AI Applications in Early Childhood Education**
Invited Seminar at Children's Learning Institute, University of Texas Health Science Center at Houston
Host: Tricia A. Zucker
Virtual Visit, Apr. 17, 2025

[T.16] **Beyond Instructions and Intentions: Surfacing User Preferences and Values in Human-AI Alignment**
Invited Seminar at IBM Research Human-Centered AI Speaker Series
Host: Michelle Brachman and Heloisa Candello
Virtual Visit, Apr. 14, 2025

Invited Seminar at Pontificia Universidad Católica de Chile
Host: Domingo Mery and Denis Perra
Santiago, Chile, Jun. 3, 2025

[T.15] **Past & Future of Intelligent and Intelligence-Augmenting Interfaces**
Invited Panel at Human Computer Interaction Consortium (HCIC '24)
Co-Panelists: Elena Glassman and Jonathan Grudin
Delavan, WI. Jun. 19, 2024

[T.14] **Fight Fire with Fire: AI Empowerment for Users Against Oppressive Algorithms**
Invited William Field Pierson Lecture, Princeton University
Host: Andrés Monroy-Hernández
Princeton, NJ. Apr. 2, 2024

[T.13] **Beyond "Thin Wrapper" in Human-AI Co-Creation**
Invited Talk at Adobe Research
Host: Cuong Nguyen and Ding Li
Virtual Visit, Nov. 28, 2023

Invited Seminar at Singapore Management University
Host: Yong Wang
Singapore, SG. Dec. 11, 2023

[T.12] **Human-AI Collaboration for Ambiguities, Uncertainties, and Evolving Objectives**
Invited Keynote at the *ICML 2023 Workshop on Artificial Intelligence & Human Computer Interaction*
Honolulu, HI. Jul. 29, 2023

[T.11] **A Bottom-Up Approach to Empower Gig Workers against AI Inequality**
Invited Seminar at HCI Summer Workshop at School of Information Studies, Syracuse University
Host: EunJeong Cheon
Virtual Visit, Aug. 4, 2022

[T.10] **End User Empowerment through Human-AI Collaboration**
Invited Seminar at HCI Group, Princeton University
Host: Andrés Monroy-Hernández
Virtual Visit, Jun. 17, 2022

[T.9] **Human-AI Collaboration in Data Annotation**
Invited Talk at Elevance Health/Anthem
Host: Adarsh Ramesh
Virtual Visit, Nov. 16, 2022

Invited Talk at IBM Research Almaden
Host: Lucian Popa and Dakuo Wang
Virtual Visit, Apr. 22, 2022

[T.8] **Screen2Vec: Semantic Embedding of GUI Screens and What They are Useful for**
Invited Seminar at HCI Group, Stanford University
Host: Michael Bernstein
Virtual Visit, Feb. 22, 2021

[T.7] **Interactive Systems for Configuring, Extending, and Developing AI Applications**
Invited Talk at Apple Research
Host: Jeff Nichols
Virtual Visit, Mar. 8, 2021

Invited Talk at HCI Lab, Hasso Plattner Institut
Host: Patrick Baudisch
Virtual Visit, Mar. 4, 2021

Invited Talk at Sigma Research Seminar Series
Host: Çağatay Demiralp
Virtual Visit, Feb. 24, 2021

Invited Talk at Microsoft Research Montréal
Host: Adam Trischler
Virtual Visit, Jan. 11, 2021

Invited Talk at Google People + AI Research (PAIR) Seminar
Host: Carrie Cai
Virtual Visit, Oct. 13, 2020

Invited Talk at IBM Research Cambridge
Host: Casey Dugan
Virtual Visit, Aug. 12, 2020

[T.6] **Interactive Task Learning from GUI-Grounded Natural Language Instructions and Demonstrations**
Invited Talk at Apple Research
Host: Jeff Nichols
Virtual Visit, Dec. 7, 2022

Invited Talk at *the AAAI-20 Workshop on Intelligent Process Automation (IPA-20)*
New York, NY. Feb. 7, 2020

[T.5] **Machine Learning from Human Instruction: Every Person a Programmer**
Invited Talk at J.P. Morgan (*with Forough Arabshahi*)
Host: Sumitra Ganesh and Denis Kochedykov
New York, NY. May 24, 2019

[T.4] **Teaching Intelligent Agents New Tricks: Natural Language Instructions plus Programming-by-Demonstration for Teaching Tasks**
Invited Talk at *Human Computer Interaction Consortium (HCIC '18)* (*with Brad Myers*)
Watsonville, CA. Jun. 25, 2018

[T.3] **SUGILITE: A Multi-Modal Agent that Learns Tasks from Natural Language and Demonstrations**
Invited Demo at *the ACL 2020 Workshop on Natural Language Interfaces*
Seattle, WA. July 10, 2020

Invited Demo at *the ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2019)*
Pittsburgh, PA. Oct. 28, 2019

Invited Lightning Talk at CMU HCII 25th Anniversary
Pittsburgh, PA. Oct. 25, 2019

Invited Talk at Oath (formerly Yahoo!)
Sunnyvale, CA. May 30, 2018

[T.2] **Atlasify – The Geography of Everything**
Invited Demo at *the 3M Science and Engineering Symposium*
St Paul, MN. Jun. 25, 2015

Invited Demo at *the Social Media and Business Analytics Collaborative (SOBACO) Research Symposium*
Minneapolis, MN. May 14, 2015

[T.1] **WikiBrain: Making Computer Programs Smarter with Knowledge from Wikipedia**
Invited Demo at *the Social Media and Business Analytics Collaborative (SOBACO) Research Symposium*
Minneapolis, MN. May 6, 2014.

Invited Guest Lectures

Human-AI Co-Creation Fall 2023, Spring 2024
CDT 30750 Generative AI in the Wild
Host: John Behrens and Ranjodh Singh Dhaliwal
University of Notre Dame, Computing and Digital Technologies

Interactive Task Learning Spring 2023
CSE 599H: Artificial Intelligence (AI) vs Intelligence Augmentation (IA)
Host: Ranjay Krishna
University of Washington, Department of Computer Science and Engineering

AI Inequality in Gig Work Fall 2022
HIST 30951: Just Wage Research

Host: Dan Graff
University of Notre Dame, Department of History

Human-AI Collaborative Systems Spring 2022
EECS 598: Human-AI Interaction and Systems
Host: Anhong Guo
University of Michigan, Department of Computer Science and Engineering

Human-AI Collaborative Systems Fall 2021
CS 228 Human-Computer Interaction
Host: Yuanyuan Feng
University of Vermont, Department of Computer Science

Toolkits for Creating Conversational Interfaces Fall 2020
05-830: Advanced User Interface Software
Host: Brad Myers
Carnegie Mellon University, Human-Computer Interaction Institute

Professional Service

Academic Service

Organizing Committee

ACM IUI 2025 General Chair
IUI 2025 Most Impact Paper Awards Selection Committee Member
IEEE VL/HCC 2025 Workshops and Showpieces Chair
CHIWORK 2023 Program Chair
ACM CSCW 2023 Demo Chair
ACM UIST 2021 Web and Design Chair

Workshop Organizer

CSCW 2025 Workshop on Critical Futures of Work
CCS 2025 Workshop on Human-Centered AI Privacy and Security (HAIPS 2025)
CSCW 2024 Workshop on Challenges and Opportunities of LLM-Based Synthetic Personae and Data in HCI
CHI 2024 Workshop on Computational Approaches for User Interfaces
CHI 2023 Workshop on Computational Approaches for User Interfaces
IUI 2023 Workshop on Designing for Safety in Human-AI Interactions (SHAI 2023)
CHI 2022 Workshop on Computational Approaches for User Interfaces

Special Interest Group (SIG) Organizer

CSCW 2023 SIG on Designing for AI-Powered Social Computing Systems
CSCW 2023 SIG on Shaping the Emerging Norms of Using LLMs in Social Computing Research

Associate Chair (AC) of Program Committee

ACM CHI 2026
ACM UIST 2025
ACM CHI 2025
ACM UIST 2024
ACM CHI 2024
ACM CHI 2023
ACM CHI 2022
ACM UIST 2021
ACM CHI 2020 Late Breaking Work Track
ACM CHI 2019 Late Breaking Work Track

Member of Program Committee

FSE/ISSTA 2025 Workshop on Human-Centered AI for SE (HumanAISE 2025)
EMNLP 2022 Workshop on Data Science with Human in the Loop (DaSH 2022)
EMNLP 2021
KDD 2021 Workshop on Data Science with Human in the Loop (DaSH 2021)
ACL 2021 Workshop on NLP for Programming (NLP4Prog)
AAAI 2020 Workshop on Intelligent Process Automation (IPA 20)

Session Chair

ACM UIST 2024 Session on *AI and Automation*
ACM CSCW 2023 Session on *Human-AI Collaboration*
ACM CHI 2023 Session on *Tools for Data Scientists and Literature Reviews*
CHIWORK 2022 Session on *Remote Work*
ACM CHI 2022 Session on *Interacting with Data* and Journal Session on *Context and the Interface*
ACM UIST 2021 Session on *Alternative Programming*
ACM CHI 2019 Session on *Conversational Interactions*

Conference Reviewer

ACM CHI (2017-2026), **ACM UIST** (2017-2025), **ACM CSCW** (2018-2023), **ACL** (2021), **ACM DIS** (2018-2021), **ACM MobileHCI** (2018-2020), **ACM TEI** (2018), **ACM SIGCSE** (2018), **ACM CHI PLAY** (2019)

Received "special recognitions" for outstanding reviews for ACM UIST 2017, ACM CHI 2018, ACM DIS 2020, ACM CHI 2021 (twice), ACM UIST 2022, ACM CSCW 2022, and ACM CHI 2024.

Journal Reviewer

ACM TOCHI (2021-2024), **ACM IMWUT** (2017-2020), **ACM TOSEM** (2022-2023), **IEEE TMC** (2018, 2022), **IEEE TSC** (2020), **IEEE Pervasive** (2018-2019), **IJGIS** (2017), **IEEE Access** (2019-2020), **Collective Intelligence** (2023)

Grant Proposal Reviewer/Panelist

Panelist, National Science Foundation (NSF) CISE (2022, 2024, 2025)
External Expert Referee, Italian Ministry of University and Research (MUR) (2022)
Reviewer, Indiana Clinical and Translational Sciences Institute (CTSI) (2021)

Departmental and Community Service

Speaker, "AI: Friend or Foe" Book and Lecture Series, Middlebury Public Library (Middlebury, IN) (2025)
Speaker and Panelist, Notre Dame-IBM Technology Ethics Lab Tech Ethics Forum (2025)
Committee Member, Notre Dame CSE Seminar Committee (2024-2025)
Committee Member, Notre Dame CSE Diversity, Equity, and Inclusion (DEI) Committee (2022-2024)
Faculty Leader, Notre Dame's Participation in TAPIA Conference of Diversity in Computing (2021-2024)
Committee Member, Notre Dame CSE Ph.D. Admissions Committee (2021-2024)
Research Presentation Co-Chair, Notre Dame Trustworthy AI Lab for Education Summit (2023)
Committee Member, Lucy Family Institute Graduate Scholar Selection Committee (2022)
Member, CMU HCII Anti-Racism Work Group (2020-2021)
Coordinator, CMU HCII Open House Faculty Research Talks (2020-2021)
Committee Member, CMU HCII Faculty Lunch Organization Committee (2019-2020)
Committee Member, CMU HCII Ph.D. Student Lounge Committee (2019-2020)
Committee Member, CMU HCII Ph.D. Admissions Committee (2018-2019)
Student Volunteer, ACM IUI 2019, ACM SIGSPATIAL 2014

Selected Press Coverage

WSBT 22 News: "Google knows a lot': Apps and companies tracking your online activity" (2024)
AAAS EurekAlert: "AI browser plug-ins to help consumers improve digital privacy literacy, combat manipulative design" (2024)
Quantum Zeitgeist: "AI Tools Combat Online Exploitation: Notre Dame's Privacy Sandbox and Dark Pita Unveiled" (2024)

Languages

English – Native or bilingual proficiency, **Chinese (Mandarin)** – Native or bilingual proficiency

Technical Skills

Programming Languages: C/C++, Java, Python, Android, JavaScript, SQL, HTML and others
UX Skills: Qualitative Research, Quantitative Research, Experiment Design, Data Analysis, UX Design
Keywords: Machine Learning, Deep Learning, Natural Language Processing, Dialog Systems, Conversational UX