Tianyi Li

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Education

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA

2015-2020 Ph.D. in Computer Science, focus on Human-Computer Interaction

Dissertation: *Supporting Crowdsourced Sensemaking with a Modularized Pipeline and Context Slices*

Committee: *Chris North (co-chair), Kurt Luther (co-chair), Gang Wang, Andrea Kavanaugh, Gregorio Convertino*

The University of Hong Kong (HKU), Hong Kong

2011-2015 B.Eng. (Computer Science), Division One Honor

2014 Exchange Study (Provost Honors), *Computer Science and Engineering (CSE)*, University of California, San Diego (UCSD).

2011 Foundation Year, Shanghai Jiaotong University.

Employment

Purdue University, West Lafayette, IN

2021/08 – Assistant Professor, Department of Computer and Information Technology

Loyola University Chicago, Chicago, IL

2020/08 – 2021/06 Assistant Professor, Department of Computer Science

Microsoft Research, Redmond, WA

2019 Summer Research Intern, AI, Ethics and Effects in Engineering and Research (Aether) | *Hosts: Mihaela Vorvoreanu, Saleema Amershi*

Cloudera, Palo Alto, CA

2018 Summer Research Intern, User Research | *Host: Gregorio Convertino*

Informatica, Redwood City, CA

2017 Summer Research Intern, User Research | *Host: Gregorio Convertino*

External Grants

2023-2025 Fostering Culturally Relevant Programming Learning Experiences by Learnersourcing Contextualized Worked-Out Examples, *$399,999*, National Science Foundation, DUE-2315683.
PI (with Co-PI Alejandra Magana-de-Leon)

Internal Funding

2023-2025 Bringing Authentic Exposure of Programming Experience to High School Students with Service Learning, *$50,000*, Purdue University Polytechnic Institute and College of Education, Purdue University, COE-PPI-PPHS Collaborative Grants.
PI (with Co-PI Victoria Lowell)

2023-2024 Improving Community Hazard Resilience through Data-driven Physics-based Crowdsourcing Approach, *$16,000*, Purdue University Holistic Safety and Security Research Impact Area, Seed Grant.
Co-PI (with PI Chengcheng Tao

2021-2022	Crowd-Machine Partnership on Road Infrastructure Quality Recognition and Resilienceh, *$6,775*, Purdue University Holistic Safety and Security Research Impact Area, Seed Grant. PI (with Co-PI Chengcheng Tao
2023	Control My News Feed: Exploring How End Users Interact with and Manipulate Social Media Recommendation Systems, *One semester support for one undergraduate researcher*, Discovery Undergraduate Interdisciplinary Research Internship (DUIRI). PI
2022	Crowd-Machine Partnership on Road Infrastructure Quality Recognition and Resilience, *One semester support for one undergraduate researcher*, Discovery Undergraduate Interdisciplinary Research Internship (DUIRI). PI

Awards and Honors

2019	Pratt Fellowship, Virginia Tech - $1000
2019	CSCW 2019 Student Volunteer Travel Fund - $800 (approx.)
2019	CSCW 2019 Doctoral Consortium Travel Fund - $1500 (approx.)
2019	IUI 2019 ACM SIGAI Student Travel Award - $800
2018-2019	Graduate Student Assembly (GSA) Travel Award, Virginia Tech - $800
2018-2019	Center for Human-Computer Interaction (CHCI) Travel Award, Virginia Tech - $1200
2018-2019	Computer Science Department Travel Award, Virginia Tech - $1800
2017	CRA-W Grad Cohort Travel Fund - $1000 (approx.)
2013	ACM programming contest (Hong Kong Regional) 3rd Place (Group)
2013-2014	C.V. Starr Scholarships (University of Hong Kong)

Publications

Note: Many top-tier publication venues in HCI are conferences (rather than journals).

Journal Papers Andrew Anderson, **Tianyi Li**, Mihaela Vorvoreanu, Margaret Burnett. Diverse Humans and Human-AI Interaction: What Cognitive Style Disaggregation Reveals. *(Under Review)* arXiv preprint arXiv:2108.00588

Tianyi Li, Mihaela Vorvoreanu, Derek DeBellis, and Saleema Amershi. Assessing Human-AI Interaction Early through Factorial Surveys: A Study on the Guidelines for Human-AI Interaction. ACM Trans. Comput.-Hum. Interact. *(TOCHI) 2021*

Maoyuan Sun, Akhil Namburi, David Koop, Jian Zhao, **Tianyi Li**, Haeyong Chung. Towards Systematic Design Considerations for Visualizing Cross-View Data Relationships. *IEEE Transactions on Visualization and Computer Graphics, (TVCG) 2021*

Andrew Anderson, Rupika Dikkala, **Tianyi Li**, Mihaela Vorvoreanu, Margaret Burnett. Understanding Diversity in Human-AI Data: What Cognitive Style Disaggregation Reveals. *arXiv preprint arXiv:2108.00588*

Peer-Reviewed Conference Proceedings **Tianyi Li**, Ping Wang, Tian Shi, Yali Bian, Andy Esakia. Task As Context: A Sensemaking Perspective on Annotating Inter-Dependent Event Attributes With Non-Experts. *Proceedings of the Eleventh AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2023)*, 11, 78-90.

Tianyi Li, Tanmay Surve, Eric Thompson, Chengcheng Tao, Yali Bian. Towards Human-Centered Pavement Quality Annotation with Crowdsourcing. *The 20th International Conference on Mobile Systems and Pervasive Computing (MobiSPC)*

Maoyuan Sun, Yue Ma, Yuanxin Wang, **Tianyi Li**, Jian Zhao, Yujun Liu, Ping-Shou Zhong. Toward Systematic Considerations of Missingness in Visual Analytics. *IEEE Visualization and Visual Analytics (VIS 2022)*

Tianyi Li, Ping Wang, Tian Shi, Andrey Esakia. Exploring the Impact of Sub-Task Inter-Dependency on Crowdsourced Event Annotation. *The 10th AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2022)*

Tianyi Li, Yasmine Belghith, Chris North, Kurt Luther. CrowdTrace: Visualizing Provenance in Distributed Sensemaking. *In 31st IEEE Visualization Conference, (VIS 2020).*

Tianyi Li, Chandler J. Manns, Chris North, and Kurt Luther. Dropping the Baton? Understanding Errors and Bottlenecks in a Crowdsourced Sensemaking Pipeline. *ACM Conference On Computer-Supported Cooperative Work And Social Computing, (CSCW 2019).* Article 136, 26 pages.

Tianyi Li, Gregorio Convertino, Ranjeet Kumar Tayi, and Shima Kazerooni. What data should I protect?: recommender and planning support for data security analysts. *Proceedings of the 24th International Conference on Intelligent User Interfaces (IUI 2019). ACM, New York, NY, USA, 286-297*

Tianyi Li, Gregorio Convertino, Wenbo Wang, Haley Most, Tristan Zajonc and Yi-Hsun Tsai. HyperTuner: Visual Analytics for Hyperparameter Tuning by Professionals. *Workshop on Machine Learning from User Interaction for Visualization and Analytics, IEEE VIS 2019, Berlin, Germany.*

Tianyi Li, Kurt Luther, and Chris North. CrowdIA: Solving Mysteries with Crowd-sourced Sensemaking. *Proceedings of the ACM on Human-Computer Interaction, (CSCW 2018). Article 105, 29 pages.*

Workshop and Position Papers etc.

Tianyi Li, Francisco Iacobelli. Purposeful AI. *The 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2023)* Special Interest Group (SIG) and Workshop on Community-Driven AI.

Ping Wang, **Tianyi Li**. Content Moderation and Personalization of Learning Materials with Learnersourcing. *Workshop on Partnerships for Cocreating Educational Content, Learning Analytics and Knowledge Conference (LAK 2023)*

Romila Pradhan, **Tianyi Li**. Human-in-the-loop Bias Mitigation in Data Science. 2022. *Human-Data Interaction Workshop (HCAI@NeurIPS 2022)*

Tianyi Li, Asmita Shah, Kurt Luther, and Chris North. Crowdsourcing Intelligence Analysis with Context Slices. *Workshop on Sensemaking in a Senseless World, CHI 2018, Montreal, Canada. (21% acceptance rate for full presentations)*

Demos and Posters

Wenlong Zhang, Bhagyashree Ingale, Hamza Shabir, **Tianyi Li**, Tian Shi, Ping Wang. Event detection explorer: An interactive tool for event detection exploration. *Companion Proceedings of the 28th International Conference on Intelligent User Interfaces (IUI 2023)*

Yue Ma, Courtney Bolton, Maoyuan Sun, Yuanxin Wang,Jian Zhao, **Tianyi Li**. Toward A Better Understanding of Missingness in Visual Analytics. *Human-Data Interaction Workshop IEEE VIS 2022.*

Tianyi Li, Gregorio Convertino, Ranjeet Kumar Tayi, Shima Kazerooni, and Gary Patterson. Adding intelligence to a data security analysis system: recommendation and planning support. *Proceedings of the 24th International Conference on Intelligent User Interfaces: Companion (IUI 2019). ACM, New York, NY, USA.*

Doctoral Consortium	**Tianyi Li**. Solving Mysteries with the Wisdom of Crowds: a Modularized Pipeline and Context Slices. *Proceedings of the ACM on Human-Computer Interaction, CSCW 2019.*
Patents	US Patent 16/138684: Hyperparameter tuning using visual analytics in a data science platform
	US Patent 15/948310: Method, apparatus, and computer-readable medium for data protection simulation and optimization in a computer network.

Teaching

As Instructor of Record at Purdue University

CNIT 37200	Database Programming *(Undergraduate Class)*
	Spring 2022, Fall 2022, Spring 2023, Fall 2023
CNIT581-048	Interactive Systems and Web Development *(Graduate Class)*
	Fall 2021, Fall 2022, Fall 2023, Spring 2024
CNIT481-022	Front End Web Programming *(Undergraduate Class)*
	Spring 2023, Spring 2024

As Instructor of Record at Loyola University Chicago

COMP 163	Discrete Structures *(Undergraduate Class, remote)*
COMP 141	Introduction to Computing Tools and Techniques *(Undergraduate Class, remote)*

As Graduate Teaching Assistant or Guest Lecturer at Virginia Tech

CS 5734	Social Computing & CSCW *(Graduate Class)*
	Fall 2019, Guest Lecture
CS 5724	Models and Theories of HCI *(Graduate Class)*
	Fall 2019, Graduate Teaching Assistant
CS 4824	Machine Learning *(Undergraduate Class)*
	Spring 2020, Graduate Teaching Assistant
CS 4634	Design Of Information *(Undergraduate Class)*
	Fall 2019, Graduate Teaching Assistant
CS 3744	Introduction to GUI Programming and Graphics *(Undergraduate Class)*
	Fall 2018, Graduate Teaching Assistant
CS 3654	Introductory Data Analytics and Visualization *(Undergraduate Class)*
	Fall 2019, Guest Lecture
CS 1044	Introduction to Programming in C *(Undergraduate Class)*
	Fall 2015, Graduate Teaching Assistant

Advising

Graduate Thesis Advisees	Mohan Chi, Ph.D. Computer and Information Technology
	Yuzhe Zhou, M.S. Computer and Information Technology
	Zishuo Feng, M.S. Computer and Information Technology
	Venkata Divya Sree Pulipati, M.S. Computer and Information Technology
	Jerry Hughes Martin, Doctor of Technology (DTech)
	Se Young Oh, Doctor of Technology (DTech)
Graduate Thesis Committees	Yiqing Qu, M.S. Computer and Information Technology
	Seung Yeon Park, M.S. Computer and Information Technology
	Amogh Chetankumar Joshi, Ph.D. Technology
	Sneha Lekha Uppala, M.S. Computer and Information Technology (Graduated 2023)

	Akash Ravi, M.S. Computer and Information Technology (Graduated 2023)
Graduate Research Advisees	Tanmay Laxman Surve, M.S. Computer and Information Technology
	Yiqun Zhang, Ph.D. Computer and Information Technology
Undergraduate Research Advisees	Harmya Bhatt, B.S. Computer Science
	Eric James Thompson, B.S. Computer Science

As a Graduate Student Mentor at Virginia Tech

2019-2020	Yasmine Belghith (M.S., Computer Science, Virginia Tech)
	Co-authored short paper at IEEE VIS 2020 (CrowdTrace).
2018-2019	Chandler J. Manns (Undergraduate, Computer Science, Virginia Tech)
	Poster presentation at VTURCS symposium. Co-authored full paper in CSCW 2019.
2017-2018	Asmita Shah (Undergraduate, Computer Science, Virginia Tech, 2017-2018)
	Poster presentation at VTURCS symposium. Co-authored workshop paper in CHI 2018.
2016 Fall	Ria Sarkar (Undergraduate, Computer Science, Virginia Tech)
2016 Spring	Chris Lai (Undergraduate, Computer Science, Virginia Tech)
2015 Fall	Edward McEnrue (Undergraduate, Computer Science, Virginia Tech)
2015 Fall	Jazmine Zurita (Undergraduate, Computer Science, Virginia Tech)

Selected Press Coverage

2023/11	Human Computation: Task as context – a crowdsouricng paradigm to achieve complex annotation (https://blog.humancomputation.com/?p=10833)
2023/10	Center for Advancing Safety of Machine Intelligence (CASMI): Designing AI Tools for Underserved Populations from the Ground Up (https://casmi.northwestern.edu/news/articles/2023/designing-ai-tools-for-underserved-populations-from-the-ground-up.html)
2023/05	Purdue Engineering Review: Crowds make sense of the world (https://medium.com/purdue-engineering/crowds-make-sense-of-the-world-b69fedc6ae6c)
2018	ACM CSCW Medium Post: Solving Mysteries with Crowdsourced Sensemaking (https://medium.com/acm-cscw/crowdia-solving-mysteries-with-crowdsourced-sensemaking-c64f10093ad2)

Professional Activities and Service

Organizing Committee	Co-organized Special Interest Group (SIG) on Purposeful AI at ACM CSCW 2023
	Poster & Demo Co-Chair for ACM IUI 2021
	Poster & Demo Co-Chair for ACM IUI 2020
Program Committee	Associate Chair for ACM CHI 2024
	ACM CSCW 2023
	TheWebConf 2022
	TheWebConf 2022
	AAAI HCOMP 2022
	ACM CSCW 2022
	The 14th ACM Recommender Systems Conference (RecSys 2020)
	The 13th ACM Recommender Systems Conference (RecSys 2019)
	Associate Chair for the CHI 2019 Late Breaking Work (LBW)

Other	Poster presentation at the Center for Integrative Research in Computing and Learning Sciences (CIRCLS) 2023 Convening: Shaping AI and Emerging Technologies to Empower Learning Communities
	Poster presentation *Algorithms That Make You Think, Fourth Annual Virginia Tech Workshop on the Future of Human-Computer Interaction* 2019
	Invited talk at NCWIT Aspirations in Computing (AiC) 2019
	Demo and poster presentation at ICAT (Institute for Creativity, Arts, and Technology) Day 2016-2018
	Poster presentation *Designing Socio-Technical Systems of Truth, Third Annual Virginia Tech Workshop on the Future of Human-Computer Interaction* 2018
	Poster presentation at CRA-W Grad Cohort Workshop 2017 (Washington, DC)
	Research Assistant at HKU Li Ka Shing Faculty of Medicine 2013
Reviewer	Conferences: CHI '18, '19, '20, '21, '22, TVCG 2021, CSCW '18, '19, '20, '21, '22, '23, Creativity & Cognition '19, '20, '21, '22, '23, IUI '19, '20, '21, '22, '23, VIS '18, '19, '20, '21, '22, '23, Creativity & Cognition '19, '20, '21, '22, '23, RecSys '18, '19, '20, '21, '22
	Journals: Computer Applications in Engineering Education, International Journal of Innovation Studies
Volunteer	IUI 2019
	CSCW 2019
	Scratch Lecturer at Koding Kingdom (Hong Kong) 2013-2015