Mingming Fan

School of Information (iSchool)
Rochester Institute of Technology
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Research Interests

Human-Computer Interaction; Aging and Accessibility; VR and AR; Human-AI Collaboration; AI-Assisted User Experience Analysis Methods; Mobile & Wearable Sensing and Interaction

Education

2015-2019
University of Toronto, Toronto, ON, Canada
Ph.D., Computer Science
Dissertation: Leveraging subtle verbalization and speech patterns to help evaluators identify usability problem encounters in concurrent think-aloud sessions
Advisor: Khai N. Truong
Committee: Mark Chignell, Daniel Wigdor, Fanny Chevalier, Mary Czerwinski

2013-2015
University of North Carolina at Charlotte, NC, USA
Ph.D. Student, Software and Information Systems
Advisor: Khai N. Truong

2011-2013
University of California at Irvine, Irvine, CA, USA
Ph.D. Student, Informatics
Advisor: Donald J. Patterson

2008-2011
Tsinghua University, Beijing, China
M.S., Computer Science (Graduated with honors)
Advisor: Yuanchun Shi

2004-2008
Beijing University of Posts and Telecommunications (BUPT), Beijing, China
B.S., Computer Science (Graduated with highest honors)
Rank: 3/297 (with the national entrance examination for postgraduate waived)

Employment

08/2019-
Assistant Professor, Rochester Institute of Technology (RIT), NY, USA
School of Information (iSchool)
Golisano College of Computing and Information Sciences

Awards & Honors

2020	Best Artifact Award (2nd place), ACM ASSETS 2020
2019	Best Paper Award (Top 1%), ACM CHI 2019
2018	Doctoral Completion Award, Department of Computer Science, University of Toronto (U of T)
2015	Best Paper Honorable Mention Award (Top 5%), ACM UbiComp 2015
2011	Early Impact Award, School of Information and Computer Science, UC Irvine
2011	Outstanding Graduate, Computer Science Department, Tsinghua University
2011	Siebel Scholar, Class of 2011
2009	Merit Scholarship (Kang Shien Scholarship), Tsinghua University
2008	Outstanding Graduate, Beijing, China
2007	Merit Scholarship (Computer World Scholarship) (top 1%), BUPT
2007	Merit Scholarship (NEC Enterprise Scholarship) (top 3%), BUPT
2006	National First-Class Prize, Mathematical Contest in Modeling in China
2006	Merit Scholarship (Guranri Enterprise Scholarship) (top 5%), BUPT
2005	Merit Scholarship (First-Class Scholarship) (top 5%), BUPT

Grants

Spring, 2020-	Co-PI, National Science Foundation (NSF): Managing Privacy and Environment for Used and End-of-Life Electronic Devices. *$496,028*
Fall, 2020-	Co-PI, National Science Foundation (NSF): Software for ALL: Accessibility Learning Labs for Experiential Accessibility Educational. *$461,787. Under review.*
03/2020—	PI, Global Cybersecurity Institute (GCI), Golisano College of Computing and Information Sciences, RIT,"Detecting Privacy-Sensitive Information in Ego-Centric Videos via Active Acoustic Sensing and Machine Learning." *$15,400.*
05/2020—	PI, Grant Writers' Boot Camp, RIT, "Leveraging Computational Sensing and Machine Learning Methods to Understand and Automatically Detect User Experience Problems." *$5,000.*
08/2019—	PI, Startup Grant, Golisano College of Computing and Information Sciences, RIT.

Publications

Publication Venues: I publish my work primarily in the fields of Human-Computer Interaction, Accessibility, Ubiquitous Computing, and Visualization.
Top-tier **journals** include *TOCHI*, *TACCESS*, and *TVCG*.
Top-tier **conferences** include *CHI*, *ASSETS*, *VIS*, and *UIST*.
Top-tier **journal-conference** hybrids: *IMWUT (UbiComp, ISWC)* and *PACM HCI (CSCW)*
<u>Underlined Authors</u>: My advisees since I started my tenure-track position in August 2019.

PEER-REVIEWED JOURNAL PAPERS

[J.9]   Jian Zhao, **Mingming Fan**, and Mi Feng. ChartSeer: Interactive steering exploratory visual analysis with machine intelligence. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2020. *In press*

[J.8]   **Mingming Fan**, Yue Li, and Khai N Truong. Automatic detection of usability problem encounters in think-aloud sessions. *ACM Transactions on Interactive Intelligent Systems (TiiS)*, 10(2):1–24, 2020

[J.6]   **Mingming Fan**, Ke Wu, Jian Zhao, Yue Li, Winter Wei, and Khai N Truong. VisTA: Integrating

machine intelligence with visualization to support the investigation of think-aloud sessions. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 26(1):343–352, 2020

[J.7]   **Mingming Fan**, Serina Shi, and Khai N Truong. Practices and challenges of using think-aloud protocols in industry. *Journal of Usability Studies*, 15:85–102, 2020

[J.5]   **Mingming Fan**, Jinglan Lin, Christina Chung, and Khai N Truong. Concurrent think-aloud verbalizations and usability problems. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 26(5):1–35, 2019

[J.4]   Franklin Mingzhe Li, Di Laura Chen, **Mingming Fan**, and Khai N Truong. FMT: A wearable camera-based object tracking memory aid for older adults. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 3(3):1–25, 2019

[J.3]   Shang Ma, Qiong Liu, **Mingming Fan**, and Phillip Sheu. Projected visible light for 3d finger tracking and device augmentation on everyday objects. *Internet of Things*, 6:100044, 2019

[J.2]   **Mingming Fan** and Khai N Truong. Guidelines for creating senior-friendly product instructions. *ACM Transactions on Accessible Computing (TACCESS)*, 11(2):1–35, 2018

[J.1]   Zhicong Lu, **Mingming Fan**, Yun Wang, Jian Zhao, Michelle Annett, and Daniel Wigdor. Ink-Planner: Supporting prewriting via intelligent visual diagramming. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 25(1):277–287, 2018

Peer-reviewed archived conference papers

[C.18]   **Mingming Fan**, Qiwen Zhao, and Vinita Tibdewal. Older adults' think-aloud verbalizations and speech features for identifying user experience problems. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI'21)*, 2021. *In press*

[C.17]   Franklin Mingzhe Li, Di Laura Chen, **Mingming Fan**, and Khai N. Truong. "I choose assistive devices that save my face": A study on perceptions of accessibility and assistive technology use conducted in china. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI'21)*, 2021. *In press*

[C.16]   Nianlong Li, Zhengquan Zhang, Can Liu, Zengyao Yang, Yinan Fu, Feng Tian, Teng Han, and **Mingming Fan**. vMirror: Enhancing the interaction with occluded or distant objects in vr with virtual mirrors. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI'21)*, 2021. *In press*

[C.15]   **Mingming Fan**, Zhen Li, and Franklin Mingzhe Li. Eyelid gestures on mobile devices for people with motor impairments. In *Proceedings of the 22th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'20)*, 2020. *Best Artifact Award (2nd Place)*.

[C.14]   Teng Han, Sirui Wang, Sijia Wang, Xiangmin Fan, Jie Liu, Feng Tian, and **Mingming Fan**. Mouillé: Exploring wetness illusion on fingertips to enhance immersive experience in VR. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI'20)*, page 1–10, 2020

[C.13]   Zhicong Lu, Michelle Annett, **Mingming Fan**, and Daniel Wigdor. "I feel it is my responsibility to stream" streaming and engaging with intangible cultural heritage through livestreaming. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI'19)*, pages 1–14, 2019. *Best Paper Award*.

[C.12]   Teng Han, Jie Liu, Khalad Hasan, **Mingming Fan**, Junhyeok Kim, Jiannan Li, Xiangmin Fan, Feng Tian, Edward Lank, and Pourang Irani. PinchList: Leveraging pinch gestures for hierarchical list navigation on smartphones. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI'19)*, pages 1–13, 2019

[C.11]   Mingzhe Li, **Mingming Fan**, and Khai N Truong. BrailleSketch: A gesture-based text input method for people with visual impairments. In *Proceedings of the 19th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'17)*, pages 12–21, 2017

[C.10] Yue Zhao, Zhongtian Qiu, Yiqing Yang, Weiwei Li, and **Mingming Fan**. An empirical study of touch-based authentication methods on smartwatches. In *Proceedings of the 2017 ACM International Symposium on Wearable Computers (ISWC'17)*, pages 122–125, 2017

[C.9] **Mingming Fan**, Yizheng Ding, Fang Shen, Yuhui You, and Zhi Yu. An empirical study of foot gestures for hands-occupied mobile interaction. In *Proceedings of the 2017 ACM International Symposium on Wearable Computers (ISWC'17)*, pages 172–173, 2017

[C.8] **Mingming Fan** and Khai N Truong. SoQr: sonically quantifying the content level inside containers. In *Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'15)*, pages 3–14, 2015. *Best Paper Honorable Mention Award.*

[C.7] **Mingming Fan**, Qiong Liu, Shang Ma, and Patrick Chiu. Smart toy car localization and navigation using projected light. In *2015 IEEE International Symposium on Multimedia (ISM'15)*, pages 399–402. IEEE, 2015

[C.6] **Mingming Fan**, Alexander Travis Adams, and Khai N Truong. Public restroom detection on mobile phone via active probing. In *Proceedings of the 2014 ACM International Symposium on Wearable Computers (ISWC'14)*, pages 27–34, 2014

[C.5] **Mingming Fan**, Qiong Liu, Hao Tang, and Patrick Chiu. HiFi: *hi*de and *fi*nd digital content associated with physical objects via coded light. In *Proceedings of the 15th Workshop on Mobile Computing Systems and Applications (HotMobile'14)*, pages 1–6, 2014

[C.4] **Mingming Fan**, Dana Gravem, Dan M Cooper, and Donald J Patterson. Augmenting gesture recognition with erlang-cox models to identify neurological disorders in premature babies. In *Proceedings of the 2012 ACM Conference on Ubiquitous Computing (UbiComp'12)*, pages 411–420, 2012

[C.3] Chun Yu, Yuanchun Shi, Ravin Balakrishnan, Xiangliang Meng, Yue Suo, **Mingming Fan**, and Yongqiang Qin. The satellite cursor: achieving MAGIC pointing without gaze tracking using multiple cursors. In *Proceedings of the 23nd annual ACM symposium on User interface software and technology (UIST'11)*, pages 163–172, 2010

[C.2] **Mingming Fan** and Yuanchun Shi. Pull and Push: Proximity-aware user interface for navigating in 3d space using a handheld camera. In *International Conference on Human-Computer Interaction (HCII'09)*, pages 133–140. Springer, 2009

[C.1] Liang Zhang, Yuanchun Shi, and **Mingming Fan**. UCam: direct manipulation using handheld camera for 3d gesture interaction. In *Proceedings of the 16th ACM international conference on Multimedia (MM'08)*, pages 801–804, 2008

Peer-reviewed workshop papers and conference extended abstracts

[w.10] Zhen Li, **Mingming Fan**, Ying Han, and Khai N Truong. iWink: Exploring eyelid gestures on mobile devices. In *Proceedings of the 1st International Workshop on Human-centric Multimedia Analysis*, pages 83–89, 2020

[w.9] **Mingming Fan**, Anuruddha Hettiarachchi, Zhicong Lu, Seyong Ha, and Priyank Gupta. Comparing mid-air finger motion with touch for small target acquisition on wearable devices. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA'17)*, pages 1593–1600, 2017

[w.8] **Mingming Fan**, Qiong Liu, Hao Tang, and Patrick Chiu. POLI: Interactive multimedia authoring and retrieval on mobile phone by leveraging its audio channel and coded light. In *2015 IEEE International Conference on Multimedia & Expo Workshops (ICME Workshop'15)*, pages 1–6. IEEE, 2015

[w.7] Maryam Khademi, **Mingming Fan**, Hossein Mousavi Hondori, and Cristina Videira Lopes. Multi-perspective multi-layer interaction on mobile device. In *Proceedings of the adjunct publication of*

the 26th annual ACM symposium on User interface software and technology (UIST EA'13), pages 65–66, 2013

[w.6]   Ramesh Jain, Laleh Jalali, and **Mingming Fan**. From health-persona to societal health. In *Proceedings of the 22nd International Conference on World Wide Web*, pages 1329–1334, 2013

[w.5]   **Mingming Fan**, Donald Patterson, and Yuanchun Shi. When camera meets accelerometer: a novel way for 3d interaction of mobile phone. In *Proceedings of the 14th international conference on Human-computer interaction with mobile devices and services companion (MobileHCI EA'12)*, pages 131–136, 2012

[w.4]   **Mingming Fan**, Xin Li, Yu Zhong, Li Tian, Yuanchun Shi, and Hao Wang. Surprise Grabber: a co-located tangible social game using phone hand gesture. In *Proceedings of the ACM 2011 conference on Computer supported cooperative work (CSCW EA'11)*, pages 625–628, 2011

[w.3]   Yuanchun Shi, **Mingming Fan**, Yu Zhong, and Xin Li. Painting in public doodle space with cam-phone brush. In *In the Adjunct Proceedings of International Conference on Ubiquitous Computing (UbiComp EA'09)*, 2009

[w.2]   Yu Zhong, Xin Li, **Mingming Fan**, and Yuanchun Shi. Doodle space: painting on a public display by cam-phone. In *Proceedings of the 2009 workshop on Ambient media computing*, pages 13–20, 2009

[w.1]   **Mingming Fan**, Liang Zhang, and Yuanchun Shi. Hand's 3d movement detection with one hand-held camera. In *Proceedings of the 2008 ACM symposium on Virtual reality software and technology (VRST'08)*, pages 255–256, 2008

Technical Reports & arxiv preprints

[TR.1]   **Mingming Fan**, Khai N Truong, and Abhishek Ranjan. Exploring the use of capacitive sensing to externally measure liquid in fluid containers. Technical report, *Knowledge Media Design Institute, University of Toronto*, 2016

[arXiv.1] **Mingming Fan** and Maryam Khademi. Predicting a business star in Yelp from its reviews text alone. *arXiv preprint arXiv:1401.0864*, 2014

Patents

[P.2]   Qiong Liu, Hao Tang, Patrick Chiu, and **Mingming Fan**. Systems and methods for hiding and finding digital content associated with physical objects via coded lighting, December 8 2015. US Patent 9,207,780

[P.1]   Yuanchun Shi, Yue Shi, and **Mingming Fan**. Contact track fusion method of multiple hierarchical cameras on interactive surface, 2013. Chinese Patent CN102270067B

Teaching

Instructor

	Course	University	Overall Rating (max)
Spring, 2021	HCIN 722:HCI with Mobile, Wearable and Ubiquitous Devices	RIT	upcoming
Fall, 2020	HCIN 720: Prototyping Wearable and IoT Devices	RIT	4.5 (5)
Spring, 2020	HCIN 722: HCI with Mobile, Wearable and Ubiquitous Devices	RIT	4.4 (5)
Fall, 2019	HCIN 720: Prototyping Wearable and IoT Devices	RIT	4.3 (5)

	Course	University
Winter, 2019	CSC2514/428: Human-Computer Interaction	U of T
Fall, 2018	CSC2514/428: Human-Computer Interaction	U of T
Winter, 2018	CSC2514/428: Human-Computer Interaction	U of T
Fall, 2017	CSC2514/428: Human-Computer Interaction	U of T
Winter, 2017	CSC2514/428: Human-Computer Interaction	U of T
Fall, 2016	CSC2514/428: Human-Computer Interaction	U of T
Winter, 2016	CSC2514/428: Human-Computer Interaction	U of T
Summer, 2016	CSC207: Software Design	U of T
Spring, 2013	IN4MATX115: Software Testing, Analysis and Quality Assurance	UC Irvine
Winter, 2013	IN4MATX171: Medical Informatics	UC Irvine
Fall, 2012	ICS60: Computer Games and Society	UC Irvine

Advising & Mentoring

PhD Students

Fall, 2020—	Emily Kuang	RIT
Fall, 2020—	Xiaofu Jin	RIT

PhD Qualification Examination Committee Member

Spring, 2020	Akhter AI Amin	RIT
Spring, 2020	Dayou Yu	RIT

Master's and Undergraduate Students

Fall/2019—	Shimei Qiu	Capstone	Advisor	RIT	
Fall/2019—	Mary Shilpa Thurr	Capstone	Advisor	RIT	
Fall/2019—	Xianyou Yang	Capstone	Advisor	RIT	
Summer, 2020—	Monika Verma	Capstone	Advisor	RIT	
Summer, 2020—	Yuni Xie	Capstone	Advisor	RIT	
Fall, 2020—	Xuan Zhao	Capstone	Advisor	RIT	
Fall, 2020—	Ruihuan Chen	Capstone	Advisor	RIT	
Fall, 2020—	Chirag Anil Ghube	Capstone	Advisor	RIT	
Fall/2019—Fall/2020	Lingyun Zhu	Capstone	Advisor	RIT	
Fall/2019–Fall/2020	Qiwen Zhao	Capstone	Advisor	RIT	contributed to [C.18]
Fall/2019—Fall/2020	Vinita Tibdewal	Capstone	Advisor	RIT	contributed to [C.18]
Fall/2019-Spring/2020	Apoorv Vekhande	Capstone	Advisor	RIT	First Job: Microsoft
Spring, 2020	Chirag Anil Ghube	Independent Study	Advisor	RIT	
Spring, 2020—	Chirag Anil Ghube	Research Assistant	Advisor	RIT	
Summer, 2020—	Yuni Xie	Research Assistant	Advisor	RIT	
Summer, 2020—	Yiwen (Molly) Wang	Research Assistant	Advisor	RIT	
Fall, 2020—	Esha Shandilya	Research Assistant	Advisor	RIT	
Fall/2019—	Yeting Bao	Capstone	Committee	RIT	
Fall/2019—	He Huai Hsu	Capstone	Committee	RIT	
Fall/2020—	Sunny Manduva	Capstone	Committee	RIT	
Fall/2020—	Vanny Chao	Capstone	Committee	RIT	
Fall/2019—	Eric Lu	CS	Mentor	U of T	
2016-2017	Franklin Mingzhe Li	CS	Mentor	U of T	contributed to [C.11, C15, J.4]
Winter 2016	Yue Zhao	CS	Mentor	U of T	contributed to [C.10]
Winter 2016	Zhongtian Qiu	CS	Mentor	U of T	contributed to [C.10]
Winter 2016	Yiqing Yang	CS	Mentor	U of T	contributed to [C.10]
Winter 2016	Weiwei Li	CS	Mentor	U of T	contributed to [C.10]
Winter 2017	Yizheng Ding	CS	Mentor	U of T	contributed to [C.9]
Winter 2017	Fang Shen	CS	Mentor	U of T	contributed to [C.9]
Winter 2017	Yuhui You	CS	Mentor	U of T	contributed to [C.9]
Winter 2017	Zhi Yu	CS	Mentor	U of T	contributed to [C.9]
2018-2019	Yue Li	CS	Mentor	U of T	contributed to [J8, J6]
2018-2019	Daniel Ke Wu	CS	Mentor	U of T	contributed to [J6]

Industry Experience

May-Aug,2014   Fuji Xerox Palo Alto Laboratory (FXPAL), Palo Alto, CA, USA
Research Intern
Topic: Coded light-based natural user interaction on mobile devices [C.7, W.8]
Mentors: Dr. Qiong Liu, Dr. Hao Tang, and Dr. Patrick Chiu

July-Sep,2013   Fuji Xerox Palo Alto Laboratory (FXPAL), Palo Alto, CA, USA
Research Intern
Topic: Coded light-based natural user interaction on mobile devices [C.5]
Mentors: Dr. Qiong Liu, Dr. Hao Tang, and Dr. Patrick Chiu

Jun-Sep,2012   Microsoft Research Asia, Beijing, China
Research Intern
Topic: Indoor localization on mobile devices by combining WiFi and inertial sensors data
Mentor: Dr. Chunshui Zhao

Apr-Jul,2011   Microsoft Research Asia, Beijing, China
Research Intern
Topic: Indoor localization on mobile devices by combining WiFi and inertial sensors data
Mentor: Dr. Chunshui Zhao

Jul-Sep,2010   IBM, Beijing, China
Summer Intern of the "Extreme Blue" Program
Topic: 3D Virtual Reality online shopping application design

Service

Internal Service

University-level service

2020   Member, Proposal for a Strategic Incremental Cluster Faculty Hire in Cognitive Science, RIT

College-level service

2020   Faculty Education and Development (FEAD) Evaluation Committee, GCCIS, RIT

Department-level service

2020   Member, Undergraduate students research promotion Committee, iSchool, RIT

External Service

Technical Program Committee

2021   ACM ASSETS
2021   ACM CHI
2020   ACM ASSETS
2020   Graphics Interface (GI)
2020   ACM CHI, Late-Breaking Work Track
2020   Human-centered Computational Sensing Workshop at PerCom'20

Reviewer (Selected)

2020-2021	ACM Transactions on Computer-Human Interaction (TOCHI)
2020-2021	International Journal of Human-Computer Interaction (IJHCI)
2013-2021	ACM CHI (**Received Special Recognition for Outstanding Reviews**)
2014-2021	ACM UbiComp/IMWUT (**Received Special Recognition for Outstanding Reviews**)
2017-2020	ACM UIST (**Received Special Recognition for Outstanding Reviews**)
2020	ACM ASSETS
2020	IEEE VIS
2019-2020	ACM MobileHCI
2019	ACM Transactions on Accessible Computing (TACCESS)
2014-2017	ACM ISWC
2017	IEEE Pervasive Computing

Venue Chair

2020	Poster Session Co-Chair, ChineseCHI 2020

Member

2012-	Association of Computing Machinery (ACM)
2019-	ACM Special Interest Group in Computer-Human Interaction (SIGCHI)

Media & Press

Sept, 2019	**New Scientist**. *Where have I left my wallet? This smart camera can remind you* based on the publication [J.4]