

Feiyu Lu

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About Me

Feiyu Lu is a Research Scientist in the Immersive Technology & Spatial Computing Team, Global Technology Applied Research Group at J.P.Morgan Chase & Co. He obtained his Ph.D. degree at Virginia Tech advised by Prof. Doug A. Bowman. His research interest lies in the intersections of **Human-Computer Interaction (HCI)**, **Augmented/Virtual/Mixed Reality (AR/VR/MR)**, **3D User Interfaces (3DUI)**, and **Machine Learning (ML)**.

Education

Virginia Polytechnic Institute and State University (Virginia Tech)

Blacksburg, VA, USA

Ph.D. in Computer Science & Applications

Aug 2018 - May 2023

- Research Group: **3D Interaction Group**
- Advisor: **Prof. Doug A. Bowman**
- Dissertation: **Glanceable AR - Towards a Pervasive and Always-On Augmented Reality Future**
- Committee Members: Prof. Joseph L. Gabbard, Prof. Wallace Lages, Prof. Sang Won Lee, Prof. Yalong Yang, Prof. Steven K. Feiner

Xi'an Jiaotong-Liverpool University (XJTLU)

Suzhou, Jiangsu, China

B.Eng in Computer Engineering

Sep 2014 - Jun 2018

- Research Group: X-CHI Group
- Advisor: **Prof. Hai-Ning Liang**
- Graduated with First-Class Honor (Top 5%)

Research Experience

Immersive Technology & Spatial Computing Team, J.P. Morgan Chase & Co.

New York, NY, USA

Research Scientist

May 2023 - Current

- I am working as a AR/VR Research Scientist in the Global Technology Applied Research Group at JPMC.
- Manager: Blair MacIntyre

Reality Labs Research, Meta Inc.

Redmond, WA, USA

Research Scientist Intern

May 2022 - Aug 2022

- I worked with teams at Reality Labs Research to perform user experience research on AR/VR interactions.
- I researched how user and system factors may influence the perceived human-AI interaction experience in AR/VR.
- I conducted a remote VR study with over 80 participants.
- The work led to a paper at ISMAR'23.
- Mentors: Yan Xu, Brennan Jones, Missie Smith, Laird Malamed & Sophie Kim

Reality Labs Research, Meta Inc.

Remote

Research Intern

May 2021 - Aug 2021

- I worked with teams at Reality Labs Research to perform usability evaluations on intelligent AR interfaces.
- I conducted workshops with UX researchers and designers to identify pain-points during AR interactions.
- I conducted a remote VR study with over 40 participants.
- The work led to a paper at CHI'22 and a filed patent.
- Mentors: Yan Xu & Sophie Kim

3D Interaction Group

Blacksburg, VA, USA

Graduate Researcher

Aug 2018 - May 2023

- I worked as a GRA in the 3D Interaction Group directed by Prof. Doug A. Bowman.
- I worked on exploring interaction techniques for lightweight activation of everyday AR content.
- I worked on designing, implementing and evaluating general-purpose systems for AR HWDs.
- I worked on developing efficient and unobtrusive information access strategies for AR HWDs.
- I worked on evaluating gaze direction visualization techniques in wide-area collaborative AR environments.
- Advisor: Prof. Doug A. Bowman

Selected Publications

JOURNAL ARTICLES

Multiple Monitors or Single Canvas? Evaluating Window Management and Layout Strategies on Virtual Displays

Leonardo Pavanatto, **Feiyu Lu**, Chris North, Doug A. Bowman

IEEE Transactions on Visualization and Computer Graphics (TVCG). 2024

DOI: 10.1109/TVCG.2024.3368930

Evaluation of Pointing Ray Techniques for Distant Object Referencing in Model-Free Outdoor Collaborative Augmented Reality

Yuan Li, Ibrahim A. Tahmid, **Feiyu Lu**, Doug A. Bowman

IEEE Transactions on Visualization and Computer Graphics (TVCG), 2022

DOI: 10.1109/TVCG.2022.3203094

CONFERENCE PROCEEDINGS

Exploring the Impact of User and System Factors on Human-AI Interactions in Head-Worn Displays

Feiyu Lu, Yan Xu, Xuhai Xu, Brennan Jones, Laird Malamed

2023 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2023, Sydney, NSW, Australia

DOI: 10.1109/ISMAR59233.2023.00025

In-the-Wild Experiences with an Interactive Glimpseable AR System for Everyday Use

Feiyu Lu, Leonardo Pavanatto, Doug A. Bowman

Proceedings of the 2023 ACM Symposium on Spatial User Interaction (SUI), 2023, Sydney, NSW, Australia

DOI: 10.1145/3607822.3614515

XAIR: A Framework of Explainable AI in Augmented Reality

Xuhai Xu, Anna Yu, Tanya R. Jonker, Kashyap Todi, **Feiyu Lu**, Xun Qian, João Marcelo Evangelista Belo, Tianyi Wang, Michelle Li, Aran Mun, Te-Yen Wu, Junxiao Shen, Ting Zhang, Narine Kokhlikyan, Fulton Wang, Paul Sorenson, Sophie Kim, Hrvoje Benko

Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI), 2023, Hamburg, Germany

DOI: 10.1145/3544548.3581500

 Best Paper Honorable Mention

Exploring Spatial UI Transition Mechanisms with Head-Worn Augmented Reality

Feiyu Lu, Yan Xu

Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI), 2022, New Orleans, LA, USA

DOI: 10.1145/3491102.3517723

Validating the Benefits of Glimpseable and Context-Aware Augmented Reality for Everyday Information Access Tasks

Shakiba Davari, **Feiyu Lu**, Doug A. Bowman

2022 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), 2022, Christchurch, New Zealand

DOI: 10.1109/VR51125.2022.00063

Exploration of Techniques for Rapid Activation of Glimpseable Information in Head-Worn Augmented Reality

Feiyu Lu, Shakiba Davari, Doug A. Bowman

Proceedings of the 2021 ACM Symposium on Spatial User Interaction (SUI), 2021, Virtual Event, USA

DOI: 10.1145/3485279.3485286

 Best Paper Honorable Mention

Evaluating the Potential of Glimpseable AR Interfaces for Authentic Everyday Uses

Feiyu Lu, Doug A. Bowman

2021 IEEE Virtual Reality and 3D User Interfaces (VR), 2021, Lisbon, Portugal

DOI: 10.1109/VR50410.2021.00104

Glimpseable AR: Evaluating Information Access Methods for Head-Worn Augmented Reality

Feiyu Lu, Shakiba Davari, Lee Lisle, Yuan Li, Doug A. Bowman

2020 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), 2020, Atlanta, GA, USA

DOI: 10.1109/VR46266.2020.00113

Gaze Direction Visualization Techniques for Collaborative Wide-Area Model-Free Augmented Reality

Yuan Li, **Feiyu Lu**, Wallace S Lages, Doug A. Bowman

Symposium on Spatial User Interaction (SUI), 2019, New Orleans, LA, USA

DOI: 10.1145/3357251.3357583

Evaluating Engagement Level and Analytical Support of Interactive Visualizations in Virtual Reality Environments

Feiyu Lu, Difeng Yu, Hai-Ning Liang, Wenjun Chen, Konstantinos Papangelis, Nazlena Mohamad Ali

2018 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2018, Munich, Germany

DOI: 10.1109/ISMAR.2018.00050

EXTENDED ABSTRACTS

Adaptive 3D UI Placement in Mixed Reality Using Deep Reinforcement Learning

Feiyu Lu*, Mengyu Chen*, Hsiang Hsu, Pranav Deshpande, Cheng Yao Wang, Blair MacIntyre

Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA), 2024, Honolulu, HI, USA

DOI: 10.1145/3613905.3651059

Hybrid User Interface for Audience Feedback Guided Asymmetric Immersive Presentation of Financial Data

Matt Gottsacker, Mengyu Chen, David Saffo, **Feiyu Lu**, Blair MacIntyre

2023 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct), 2023, Sydney, NSW, Australia

DOI: 10.1109/ISMAR-Adjunct60411.2023.00046

Achievements

2024	Special Recognition for Reviewing , CHI'24, CHI'23, ISS'23, UIST'23, ISMAR'22	Peer-Review
2023	Best Paper Honorable Mention Award (Top 5%) , CHI'23	Hamburg, Germany
2022	Best 3DUI Award (1 of 11 teams) , IEEEVR'22	Christchurch, New Zealand
2021	Best Paper Honorable Mention Award (Top 10%) , SUI'21	Virtual Event
2021	Finalist (Top 3.5% of 2,163 applicants) , Facebook Ph.D. Fellowship	Virtual Event
2021	Best 3DUI Award (1 of 17 teams) , IEEEVR'21	Lisbon, Portugal

Patent

2021	Dynamic widget placement within an artificial reality display , No. 17/747,767	Pending
2020	Interacting with Glanceable Information in Wearable Augmented Reality , No. 63/147,805	Pending

Reviewing

2024	CHI * , ISS, MobileHCI, ISMAR
2023	CHI * , UIST *, ISS *, VRST
2022	IEEEVR, ISMAR * , SIGGRAPH, UIST
2021	CHI, IEEEVR, SIGGRAPH

Skills

Research	Augmented Reality, Virtual Reality, 3D Interactions, Spatial UI, Human-Computer Interaction.
Tools & Programming	Unity3D, C#, Python, JavaScript, TypeScript, Blender, Procreate, R, SPSS, Adobe Suites.
Method	Mixed-method Research, Statistical Analysis, Thematic Analysis, Experimental Design, Usability Evaluation, Performance Modeling.