

TICA LIN

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Data Visualization · Human-AI Interaction · Immersive Analytics · AR/VR · SportsXR

🏛️ EDUCATION

Harvard University	Cambridge, MA, USA
Ph.D. in Computer Science (Advisor: Dr. Hanspeter Pfister)	2019 - 2024
Georgia Institute of Technology	Atlanta, GA, USA
M.S. in Digital Media (Advisor: Dr. Janet Murray)	2015 - 2017
Best Project Award, Class of 2017	
National Taiwan University	Taipei, Taiwan
B.S. in Electrical Engineering	2010 - 2015
Osaka University	Osaka, Japan
Frontier Lab Exchange Student (Advisor: Dr. Shinji Shimojo)	2013 - 2014

📖 RESEARCH & TEACHING EXPERIENCE

Harvard University	Cambridge, MA
<i>Graduate Research Assistant, Visual Computing Group</i>	2019 Sep - Present
<ul style="list-style-type: none">Investigate the confluence of data visualization and AR/VR, utilizing a human-centered approach that incorporates the design and execution of user studies with qualitative and quantitative research methodsDevelop novel visualization and interaction techniques with nascent XR platforms (e.g., Apple Vision Pro, HoloLens, Meta Quest) to enable effective information retrieval and visual analytics within dynamic environmentsPublished 8 first-authored papers at top venues with Best Paper Awards at CHI, VIS, and PacificVis	
<i>Media & Design Fellow, Derek Bok Center for Teaching and Learning</i>	2021 Sep - 2022 May
<ul style="list-style-type: none">Supported innovative course development and advocate for data visualization through integrating new digital tools into curriculum, including interactive web-based and immersive applications in Unity	
<i>Teaching Fellow, CS171 Visualization</i>	2020 Sep - Dec
<ul style="list-style-type: none">Pioneered digital learning through leading labs and zoom-based activities, crafting data visualization tutorials for d3 and tableau, and mentoring teams in a remote setting amid COVID-19.	
Adobe Research	Cambridge, MA
<i>Research Scientist Intern, Creative Technologies Lab</i>	2022 May - Aug / 2023 Sep - Dec
<ul style="list-style-type: none">Conducted HCI research with GenAI model developers to address challenges in AI model evaluations and developed a collaborative visual analytic tool targeting failure analysis. Publication [C7]Collaborated with badminton Olympians to develop a VR badminton match video analytic platform leveraging state-of-the-art CV models and immersive visualizations. Publication [J8]	
Apple	Sunnyvale, CA
<i>Research Intern, Vision Products Group</i>	2023 May - Sep
<ul style="list-style-type: none">Collaborated with ML engineers and invented a novel analytic pipeline with immersive visualizations for 3D CVML model interpretation and diagnosis.	

Meta

Research Scientist Intern, Facebook Reality Labs

Toronto, Canada (Remote)

2021 Jun - Sep

- Conducted human-AI interaction research to address input recognition problems in XR technologies with large-scale quantitative user studies. Publication [C5]

📁 INDUSTRIAL EXPERIENCE

Adobe

Applied Scientist Intern (Part-Time), Adobe Firefly

Cambridge, MA

2024 Feb - Present

- Contributed to scientific evaluation of advanced Generative AI models with rigorous large-scale user studies design, supporting key insights for human-centered model development

Minnesota Timberwolves

UX Research & Design Consultant

2022 Sep - Nov

- Spearheaded user research to improve the efficacy and UX of internal basketball analytics products

Visa

Sr. Data Visualization Designer / Engineer

San Francisco, CA

2018 - 2019

- Designed data visualization and B2B data product prototypes to deliver data-driven business insights
- Led the design and development of the first in-house data visualization library in Visa Design System

Philadelphia 76ers

UX Developer- Analytics & Strategy

Philadelphia, PA

2017 - 2018

- Designed internal data products to enhance basketball operations and strategy development, effectively delivering data-driven decisions to executives, coaches, and scouts through optimized data visualization and product design. Reported by *The Philadelphia Inquirer*

📖 PUBLICATIONS

JOURNAL

- J9 Simon Warchol, Jakob Troidl, Jeremy Muhlich, Robert Krueger, John Hoffer, **Tica Lin**, Johanna Beyer, Elena Glassman, Peter Sorger, Hanspeter Pfister. “psudo: Exploring Multi-Channel Biomedical Image Data with Spatially and Perceptually Optimized Pseudocoloring.” *Computer Graphics Forum*, 2024 (**Euro Vis’24**).
- J8 **Tica Lin**, Alexandre Aouididi, Zhutian Chen, Johanna Beyer, Hanspeter Pfister, Jui-Hsien Wang. “VIRD: Immersive Match Video Analysis for High-Performance Badminton Coaching.” *IEEE Transactions on Visualization and Computer Graphics*, 2023 (**VIS’23**).
- J7 Zhutian Chen, Daniele Chiappalupi, **Tica Lin**, Yalong Yang, Johanna Beyer, Hanspeter Pfister. “RL-LABEL: A Deep Reinforcement Learning Solution for AR Label Placement in Dynamic Scenarios.” *IEEE Transactions on Visualization and Computer Graphics*, 2023 (**VIS’23**).
- J6 Sungwon In, **Tica Lin**, Chris North, Hanspeter Pfister, Yalong Yang. “This is the Table I Want! Towards an Understanding of User Interface Based Data Transformation on Desktop and in Virtual Reality.” *IEEE Transactions on Visualization and Computer Graphics*, 2023.
- J5 **Tica Lin**, Zhutian Chen, Yalong Yang, Daniele Chiappalupi, Johanna Beyer, Hanspeter Pfister. “The Quest for Omniculars: Embedded Visualization for Augmenting Basketball Game Viewing Experiences.” *IEEE Transactions on Visualization and Computer Graphics*, 2022 (**VIS’22**).
- 🏆 **Best Paper Honorable Mention Award**

- J4 **Tica Lin**, Zhutian Chen, Johanna Beyer, Yingcai Wu, Hanspeter Pfister, Yalong Yang. “The Ball is in Our Court: Conducting Visualization Research with Sports Experts.” *IEEE Computer Graphics and Applications*, 2022
- J3 **Tica Lin**, Yalong Yang, Johanna Beyer, Hanspeter Pfister. “Labeling Out-of-View Objects in Immersive Analytics to Support Situated Visual Searching.” *IEEE Transactions on Visualization and Computer Graphics*, 2021.
- J2 Hanspeter Pfister, **Tica Lin**, Yalong Yang, Johanna Beyer. Bringing the AR cloud to sports. *Harvard Business School Digital Initiative, December/January Edition*, 2019.
- J1 **Tica Lin**. Grow Design Quality as a Data Vis Designer. *Nightingale, Journal of Data Visualization Society*, 2019.

CONFERENCE

- C7 **Tica Lin**, Hanspeter Pfister, Jui-Hsien Wang. “GenLens: A Systematic Evaluation of Visual GenAI Model Outputs.” *IEEE 17th Pacific Visualization Conference, 2024 (Pacific Vis’24)*.
 **VisNotes Best Paper Award**
- C6 Yen-Ru Chen, Tsung-Hsun Tsai, **Tica Lin**, Calvin Ku, Min-Chun Hu, Hung-Kuo Chu. “Depth Perception Training in Boxing: An Immersive Design Approach.” *IEEE Conference on Virtual Reality and 3D User Interfaces, 2024 (IEEEVR’24 Poster)*.
- C5 **Tica Lin**, Ben Lafreniere, Yan Xu, Tovi Grossman, Daniel Wigdor, Michael Glueck. “XR Input Error Mediation for Hand-Based Input: Task and Context Influences a User’s Preference.” *IEEE International Symposium on Mixed and Augmented Reality, 2023 (ISMAR’23)*.
- C4 Zhutian Chen, Qisen Yang, Jiarui Shan, **Tica Lin**, Johanna Beyer, Haijun Xia, Hanspeter Pfister. “iBall: Augmenting Basketball Videos with Gaze-moderated Embedded Visualizations.” *ACM Conference on Human Factors in Computing Systems, 2023 (CHI’23)*.
- C3 **Tica Lin**, Rishi Singh, Yalong Yang, Carolina Nobre, Johanna Beyer, Maurice Smith, Hanspeter Pfister. “Towards an Understanding of Situated AR Visualization for Basketball Free-Throw Training.” *ACM Conference on Human Factors in Computing Systems, 2021 (CHI’21)*.
 **Best Paper Honorable Mention Award**
- C2 Barrett Ens, Benjamin Bach, Maxime Cordeil, Ulrich Engelke, Marcos Serrano, Wesley Willett, Arnaud Prouzeau, Christoph Anthes, Wolfgang Büschel, Cody Dunne, Tim Dwyer, Jens Grubert, Jason H Haga, Nurit Kirshenbaum, Dylan Kobayashi, **Tica Lin**, Monsurat Olaosebikan, Fabian Pointecker, David Saffo, Nazmus Saquib, Dieter Schmalstieg, Danielle Albers Szafir, Matt Whitlock, Yalong Yang. “Grand challenges in immersive analytics.” *ACM Conference on Human Factors in Computing Systems, 2021 (CHI’21)*.
- C1 **Tica Lin**, Yalong Yang, Johanna Beyer, Hanspeter Pfister. “SportsXR –Immersive Analytics in Sports.” *4th Workshop on Immersive Analytics: Envisioning Future Productivity for Immersive Analytics, 2020 (CHI’20 Workshop)*.

BOOK

Tica Lin. “我在 76 人的日子 (My 76ers Story)” 1st edition, AnYueXuan Publishing House, 2024. ISBN 978-626-01-2107-5.

AWARDS

Best Paper Award (VisNotes), IEEE PacificVis Conference, 2024

Taipei Women in Tech Honoree, 2024

Best Paper Honorable Mention Award (Top 5%), IEEE VIS Conference, 2022

Best Paper Honorable Mention Award (Top 5%), ACM CHI Conference, 2021

Harvard College Teaching Award, Certificates of Distinction for Teaching Fellows, *2020*
Longlist, KANTAR Information is Beautiful Awards, *2019*
Best Master's Thesis Project Award, M.S. Digital Media at Georgia Tech, *2017*
Honorable Mention Award, MARTA Hackathon Smart City+IoT, Atlanta, *2017*
Finalist, NBA Basketball Analytics Hackathon, New York, *2016*

🏠 ACADEMIC SERVICES

Workshop Co-organizer, First-Person Visualizations for Outdoor Physical Activities: Challenges and Opportunities, IEEE VIS, *2024*
Reviewer, IEEE VIS, IEEE VR, Pacific VIS, Computers & Graphics, TVCG, UIST, *2019 - current*
Mentor, Harvard SEAS DIB Application Assistance Initiative, *2021*
Program Committee, VR/AR/MR Track, Grace Hopper Celebration, *2021*
Student Volunteer, IEEE VIS, *2021*
Thesis Mentor, Harvard Undergraduate Senior Thesis, *2020*

🗣️ INVITED TALKS & LECTURES

Harvard x MIT Taiwanese Student Research Talk, *March 2024*
SportsXR: Sports Analytics with Immersive Visualizations
University of Massachusetts Boston, CS617 - Visualizing Boston, *March 2024*
SportsXR: Sports Analytics with Immersive Visualizations
Brandeis University, COSI 116A - Information Visualization, *November 2023*
Designing XR Visualizations for Real-life Analytic Tasks
JPMorgan Chase & Co, Applied Research Team, *October 2023*
Turn Data into Reality: Designing Contextual XR Visualizations for Situated Analytics
Georgia Tech, CS 4460 - Introduction to Information Visualization, *October 2023*
SportsXR: Augmenting Sports Analytics with Immersive Visualizations
Inria at Université Paris-Saclay, AVIZ research group, *April 2023*
From Data to Reality: Augmenting Sports Analytics Workflow with Situated Visualizations
Boston College, CSCI 3361 - Human-Computer Interaction, *April 2023*
Human-Centered Design in SportsXR
Harvard SEAS Research Showcase: SportsXR, *March 2023*
Harvard AR/VR Symposium: Sports Meet XR, *November 2022*
National Tsing Hua University, Department of Computer Science, *November 2022*
Sports Analytics & Visualization Research
Gate Sports Education: Introduction to Sports Analytics Workshop, *June 2022*
St. Ambrose University, KIN 401 - Seminar in Sport Management, *April 2022*
21st Century Sports Analytics & Innovation
Harvard University, CS 171 - Visualization, *2021*
Visualization Research Intro: Immersive Analytics in Sports
Gate Sports Education, *November 2021*
Study Abroad: PhD in Sports Technology & Analytics
World IA Day Atlanta, AR/VR Panel, *2017*

📄 CONFERENCE PRESENTATIONS

GenLens: A Systematic Evaluation of Visual GenAI Model Outputs, PacificVis, Tokyo, *2024*

VIRD: Immersive Match Video Analysis for High-Performance Badminton Coaching, IEEE VIS, Melbourne, 2023

XR Input Error Mediation for Hand-Based Input: Task and Context Influences a User's Preference, IEEE ISMAR, Sydney, 2023

The Quest for Omnioculars: Embedded Visualization for Augmenting Basketball Game Viewing Experiences, IEEE VIS, Oklahoma City, 2022

Labeling Out-of-View Objects in Immersive Analytics to Support Situated Visual Searching, IEEE VIS, Oklahoma City, 2022

Towards an Understanding of Situated AR Visualization for Basketball Free-Throw Training, ACM CHI, Yokohama (Virtual), 2021

SportsXR –Immersive Analytics in Sports, 4th Workshop on Immersive Analytics @ CHI, 2020

AquaRium –Augmented Reality tour app for aquarium, AR in Action, New York, 2017

SCHOLARSHIP

GSAS Professional Development Fund, Harvard University, 2022

Young Scholar Award, North America Taiwanese Professors' Association, 2021

Government Scholarship to Study Abroad (GSSA), Taiwan Ministry of Education, 2020

PhD Fellowship, Harvard University, 2019

JASSO Scholarship, Japan Student Services Organization, 2013

PATENTS

Trajectory Visualization System and Method for Motor-Skill Development, International Application No. PCT/US22/23384, 2022

Embedded Visualization for Augmenting Viewing Experiences, U.S. Provisional Application No. 63/394,683., 2022

SELECTED PRESS

“From game footage to great footage” by Harvard School of Engineering and Applied Sciences

“Analytics-driven Sixers ride the numbers to NBA playoffs” by The Philadelphia Inquirer

“From team captain to UX designer in NBA: The unchanged passion” by ECO Sports

“Basketball Analytics at NBA 76ers” by Sina.com

“Students Create AR Experiences for Entertainment and Education” by Georgia Tech Institute for People and Technology

SKILLS

Computer Languages	C#, Python, Javascript, R, D3.js, ThreeJS, React, HTML, CSS
Design Tools	Unity 3D, Figma, AdobeXD, Sketch, Miro, Tableau, Premiere