

Alex Yang

Spatial Computing + HCI

My research explores how **Spatial Computing** techniques, grounded in **HCI** principles, can reshape the way we analyze and interpret multi-dimensional data. I focus on innovating **Immersive Visualization** frameworks and designing systems for **Cross-Reality Collaboration**, enabling more intuitive and interactive data exploration across physical, virtual, and hybrid environments.

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Education

Aug. 2024 — Present

Ph.D. in Computer Science

Georgia Institute of Technology, Atlanta, GA
Advisor: Yalong Yang, Co-advisor: Polo Chau

Aug. 2022 — May 2023

M.S. in Computer Science

Georgia Institute of Technology, Atlanta, GA
Specialization: Computational Perception and Robotics
Advisor: Polo Chau, Co-advisor: Thad Starner

Aug. 2019 — May 2022

B.S. in Computer Science

Georgia Institute of Technology, Atlanta, GA
Concentration: Intelligence and Devices
Highest Honor, GPA: 4.00/4.00, Minor in Japanese

Research Experience

Aug. 2024 — Present

Georgia Institute of Technology, Atlanta, GA

Graduate Research Assistant, School of Interactive Computing

Advisor: Yalong Yang, Polo Chau

Member of the IVI Lab and Polo Club of Data Science in Georgia Tech's Visualization Lab, where we innovate at the intersection of data visualization, human-computer interaction, and artificial intelligence.

Aug. 2022 — May 2023

Georgia Institute of Technology, Atlanta, GA

Graduate Research Assistant, School of Computational Science and Engineering

Advisor: Polo Chau, Thad Starner

Researched and developed interactive visualization systems and AI-driven data exploration frameworks for literature analysis, generative model curation, and ambient intelligence.

Sept. 2020 — May 2022

Georgia Institute of Technology, Atlanta, GA

Undergraduate Research Assistant, School of Computational Science and Engineering

Advisor: Polo Chau

Investigated immersive and web-based visualization techniques through the development of an AR platform for surgical planning and a web-based system facilitating interactive graph analytics learning.

Industry Experience

June 2023 — July 2024

Goldman Sachs, Dallas, TX

Software Engineer, Private Wealth Management

Mentor: Japen Pathak

Designed, developed, and maintained scalable platforms for client portfolio management and data-driven financial analytics.

June 2022 — Aug. 2022

Goldman Sachs, Dallas, TX

Software Engineering Summer Analyst, Consumer and Wealth Management

Designed and delivered a real-time trading interface that streamlined trade monitoring and notifications. Collaborated with design and mobile teams to create a cohesive user experience across platforms.

Awards and Honors

- 2023 **Best Paper Award, Honorable Mention at ACL Conference**
For "DiffusionDB: A Large-scale Prompt Gallery Dataset for Text-to-Image Generative Models"
- 2023 **Donald V. Jackson Fellowship Award**
Selected to represent the School of Computational Science and Engineering as the outstanding first-year Master's student at Georgia Tech
- 2021 **Best Paper Award, Honorable Mention at IEEE VIS Conference**
For "Argo Scholar: Interactive Visual Exploration of Literature in Browsers"

Publications

Journal

LitForager: Exploring Multimodal Literature Foraging Strategies in Immersive Sensemaking

Alex Yang, Elliott Faa, Weijian Liu, Shunan Guo, Polo Chau, Yalong Yang

IEEE Transactions on Visualization and Computer Graphics (TVCG) Special Issue

IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Daejeon, South Korea, 2025.

[PDF](#) [Project](#) [Code](#) [Preview](#) [Video](#) ★ **TVCG Track (top 8%)**

Conference

Diffusion Explainer: Visual Explanation for Text-to-image Stable Diffusion

Seongmin Lee, Benjamin Hoover, Hendrik Strobelt, Zijie J. Wang, Anthony Peng, Austin Wright, Kevin Li, Haekyu Park, **Alex Yang**, Polo Chau

IEEE Visualization Conference (VIS), Virtual, 2024.

[PDF](#) [Project](#) [Code \(★400\)](#) [Blog](#) [Video](#) [Poster](#)

ARCollab: Towards Multi-User Interactive Cardiovascular Surgical Planning in Mobile Augmented Reality

Pratham Darrpan Mehta, Harsha Dinesh Karanth, **Alex Yang**, Timothy C. Slesnick, Fawwaz Shaw, Polo Chau

ACM Conference on Human Factors in Computing Systems (CHI), Honolulu, HI, USA, 2024.

[PDF](#) [Project](#) [Code](#)

Multi-User Mobile Augmented Reality for Cardiovascular Surgical Planning

Pratham Darrpan Mehta, Rahul O. Narayanan, Harsha Dinesh Karanth, **Alex Yang**, Timothy C. Slesnick, Fawwaz Shaw, Polo Chau

IEEE Visualization Conference (VIS), Virtual, 2024.

[PDF](#) [Project](#) [Code](#)

DiffusionDB: A Large-scale Prompt Gallery Dataset for Text-to-Image Generative Models

Zijie J. Wang, Evan Montoya, David Munechika, **Alex Yang**, Benjamin Hoover, Polo Chau

Association for Computational Linguistics (ACL), Toronto, Canada, 2023.

[PDF](#) [Project](#) [Code \(★1,313\)](#) [Dataset](#) 🏆 **Best Paper Award, Honorable Mention**

★ **Trending on Hugging Face (📥 2M+)**

Workshop

3D Gaussian Splat Vulnerabilities

Matthew Hull, **Alex Yang**, Pratham Darrpan Mehta, Mansi Phute, Aeree Cho, Haoran Wang, Matthew Lau, Wenke Lee, Willian Lunardi, Martin Andreoni, Polo Chau

Workshop on Neural Fields Beyond Conventional Cameras

IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Nashville, TN, USA, 2025.

[PDF](#) [Project](#) [Code](#) [Video](#) [Poster](#)

Symbiotic Artificial Intelligence: Order Picking and Ambient Sensing

Zhe Ming Chng, Calix Tang, Darshan Krishnaswamy, **Alex Yang**, Shivang Chopra, Jon Womack, Thad Starner

Workshop on Ambient AI Multimodal Wearable Sensor Understanding

IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Rhodes Island, Greece, 2023.

[PDF](#) [Project](#) [Code](#)

Poster

Evaluating Cardiovascular Surgical Planning in Mobile Augmented Reality

Alex Yang, Pratham Darrpan Mehta, Jonathan Leo, Zhiyan Zhou, Megan Dass, Anish Upadhayay, Timothy C. Slesnick, Fawwaz Shaw, Amanda Randles, Polo Chau

IEEE Visualization Conference (VIS), Oklahoma City, OK, USA, 2022.

[PDF](#) [Project](#) [Code](#) [Video](#) [Poster](#)

Evaluation of Argo Scholar with Observational Study

Kevin Li, Alex Yang, Evan Montoya, Anish Upadhayay, Zhiyan Zhou, Jon Saad-Falcon, Polo Chau

IEEE Visualization Conference (VIS), Oklahoma City, OK, USA, 2022.

[PDF](#) [Project](#) [Code](#) [Video](#) [Poster](#)

Argo Scholar: Interactive Visual Exploration of Literature in Browsers

Kevin Li, Alex Yang, Anish Upadhayay, Zhiyan Zhou, Jon Saad-Falcon, Polo Chau

IEEE Visualization Conference (VIS), Virtual, 2021.

[PDF](#) [Project](#) [Code \(★63\)](#) [Video](#) [Poster](#) 🏆 Best Poster Award, Honorable Mention

Interactive Cardiovascular Surgical Planning via Augmented Reality

Jonathan Leo, Zhiyan Zhou, Alex Yang, Megan Dass, Anish Upadhayay, Timothy C. Slesnick, Fawwaz Shaw, Polo Chau

Asian Conference on Computer Human Interaction (Asian CHI), Virtual, 2021.

[PDF](#) [Project](#) [Code \(★16\)](#) [Video](#)

Demo

Interactive Visual Learning for Stable Diffusion

Seongmin Lee, Benjamin Hoover, Hendrik Strobelt, Zijie J. Wang, Anthony Peng, Austin Wright, Kevin Li, Haekyu Park, Alex Yang, Polo Chau

International Joint Conference on Artificial Intelligence (IJCAI), Jeju, South Korea, 2024.

[PDF](#) [Project](#) [Code](#) [Video](#)

Visual Exploration of Literature with Argo Scholar

Kevin Li, Alex Yang, Evan Montoya, Anish Upadhayay, Zhiyan Zhou, Jon Saad-Falcon, Polo Chau

ACM Conference on Information and Knowledge Management (CIKM), Atlanta, GA, USA, 2022.

[PDF](#) [Project](#) [Code](#) [Video](#) [Poster](#)

Preprint

ComplicitSplat: Downstream Models are Vulnerable to Blackbox Attacks by 3D Gaussian Splat Camouflages

Matthew Hull, Alex Yang, Pratham Darrpan Mehta, Mansi Phute, Aeree Cho, Haoran Wang, Matthew Lau, Wenke Lee, Willian Lunardi, Martin Andreoni, Polo Chau

arXiv, 2025.

[PDF](#) [Project](#) [Code \(★10\)](#)

Teaching

Fall 2022 — Spring 2023

Graduate Teaching Assistant

Georgia Institute of Technology, Atlanta, GA

Data and Visual Analytics (CSE 6242 / CX 4242), Instructor: Polo Chau

Designed and developed teaching tools, held weekly office hours, and mentored student team projects for Data and Visual Analytics (CSE 6242 / CX 4242), a graduate course with over 2,000 students enrolled.

Mentoring

Fall 2025— Present

Lily Chisholm

B.S. in Computer Science, Georgia Institute of Technology

Cross-reality collaboration in immersive analytics

Spring 2025— Present

Elliott Faa

B.S. in Computer Science, Georgia Institute of Technology

Spatial interaction and immersive visualization methods

Spring 2025— Present

Weijian Liu

M.S. in Computer Science, Georgia Institute of Technology

User-centered design and qualitative analysis of immersive systems

Fall 2021 — Spring 2025

Pratham Mehta

B.S./M.S. in Computer Science, Georgia Institute of Technology

AR visualization techniques for cardiac surgical planning

🏆 Donald V. Jackson Fellowship Award, Spring 2025

Now: Software Engineer at Figma

Fall 2021 — Spring 2022

Evan Montoya

B.S. in Computer Science, Georgia Institute of Technology

Interactive graph visualization design

🏆 Stamps President's Scholar

Now: Research Intern at Massachusetts Institute of Technology

Service

Reviewer

ACM Conference on Human Factors in Computing Systems (**CHI**) 2026

IEEE Conference on Virtual Reality and 3D User Interfaces (**VR**) 2026

IEEE Visualization Conference (**VIS**) 2025

ACM Symposium on Virtual Reality Software and Technology (**VRST**) 2025

Workshop on Visualization for AI Explainability (**VISxAI**) at IEEE VIS 2025

Institutional

Billiards @ Georgia Tech, Co-founder & Vice President, 2019 - 2020

Member

2021 — Present

Association for Computing Machinery (**ACM**)

2021 — Present

Institute of Electrical and Electronics Engineers (**IEEE**)

References

Dr. Yalong Yang, Assistant Professor

School of Interactive Computing

Georgia Institute of Technology

ivi.cc.gatech.edu/pi

Dr. Polo Chau, Professor

School of Computational Science and Engineering

Georgia Institute of Technology

cc.gatech.edu/~dchau/

Dr. Thad Starner, Professor

School of Interactive Computing

Georgia Institute of Technology

cc.gatech.edu/thad-starner/