

Overview

My work focuses on building agentic systems for motion graphics and creative authoring, using frontier models to help users design, edit, and iterate on time-based media. I study how to represent motion as structured, editable programs, so that AI systems can reason about design and creators can make precise, incremental changes without starting from scratch.

My research has led to multiple technology transfers into Adobe products, including animation and video features shipped in Adobe Express, more than 25 papers at top HCI conferences, and 39 filed patents (19 issued).

Earlier in my career, I explored immersive creative tools for VR/AR, culminating in a production system that received a [Technology & Engineering Emmy Award](#) (2025)

Research Interests

Agentic Motion Graphics
Proactive Design Assistant
Spatial Creativity

Education

Portland State University 2012 - 2017
Ph.D. in Computer Science
Advised by [Dr. Feng Liu](#).

Portland State University 2010 - 2012
Bachelor of Science in Computer Science

Ho Chi Minh City University of Science 2007 - 2009
Bachelor of Science in Computer Science

Experience

Senior Research Scientist Adobe Research
601 Townsend St, San Francisco, CA 94103 30 Oct 2017 – present

Key roles:

- **Research:** Invent novel authoring experiences powered by AI, guided by user-centered HCI principles. Currently leading efforts in agentic motion graphics using code generation.
- **Tech transfer:** Drive engagement with product teams to transform research into user-facing products. Build proof-of-concept prototypes directly in the product codebase, adapt AI models for production use, and develop experiments, user studies, and quantitative metrics to assess readiness. Collaborate closely with engineers to scope and execute production plans that meet performance, reliability, and user experience goals.
- **Services:** Organize research seminars to foster HCI research community within Adobe (2021 - 2024). Serve on Immersive technology patent committee (2021-2024).

Notable outputs:

- **2024. *Animate All: Auto animate design documents*:** Tech transfer. Shipped in Adobe Express. Increased animation usage by ~ 30% post-launch, reaching ~ 1.8M monthly uses as of October 2025.
- **2023. *Face-ware video captioning*:** Tech transfer. Shipped in Adobe Express.
- **2019. *Adobe Max Sneaks live demo of Project Pronto*.**
- **2018. *360 video editing in VR*:** Tech transfer. Shipped in Premiere Pro and After Effects. Received the Technology & Engineering Emmy Award in 2025.

Research Intern

San Francisco, CA Adobe Research
06 June 2016 – 09 Dec 2016
Work with Stephen DiVerdi and Aaron Hertzmann in two back-to-back research internships to explore novel interfaces for Virtual Reality.

Outputs:

- Accepted paper and best paper honorable mention award at ACM CHI 2017 (Vremiere), and accepted paper at ACM UIST 2017 (CollaVR).

- Selected to demo at [Adobe Max 2016](#).
- Media coverage [CNET](#), [UploadVR](#), [RoadToVR](#).
- Became the foundation to building Premiere Pro's VR features, which granted the Premiere Pro team the prestigious [Red Shark industry award](#).

Graduate Research Assistant

Portland, OR

Portland State University

15 Sep 2012 – 16 Sep 2017

Research and develop new interfaces and techniques to enable novel video interaction experience.

Notable projects: *Video Summagator*, a 3D interface that lets users quickly understand the video content through interactive volume visualization; *Responsive Software Tutorial*, a video player for software tutorial that lets users directly interact with the software shown in the video to quickly locate meaningful content; and *GazeNoter*, a gaze-based video player for lecture video that tracks user gaze to highlight interesting lecture notes and automatically control the video playback.

Publications

DepthScape: Authoring 2.5D Designs with Depth Estimation, Semantic Understanding, and Geometry Extraction

Xia Su, Cuong Nguyen, Matheus Gadelha, Jon E. Froehlich

In Proceedings of ACM DIS 20026

Visual Lyrics: Automatic Generation of Animated Lyric Videos

David Chuan-En Lin, Cuong Nguyen, Valentina Shin, Nikola Martelaro

In Proceedings of ACM IUI 2026 [Project Webpage](#)

SweeperBot: Making 3D Browsing Accessible through View Analysis and Visual Question Answering

Chen Chen, Cuong Nguyen, Alexa Siu, Ding Li, Nadir Weibel

International Journal of HumanComputer Interaction 2025

MemoVis: A GenAI-Powered Tool for Creating Companion Reference Images for 3D Design Feedback

Chen Chen, Cuong Nguyen, Thibault Groueix, Vladimir G. Kim, Nadir Weibel

ACM TOCHI. Presented at UIST 2024.

PaperToPlace: Transforming Instruction Documents into Spatialized and Context-Aware Mixed Reality Experiences

Chen Chen, Cuong Nguyen, Jane Hoffswell, Jennifer Healey, Trung Bui, Nadir Weibel

In Proceedings of UIST 2023

GestureCanvas: Prototyping Compound Freehand Interaction in VR through Programming by Demonstration

Anika Sayara, Emily Lynn Chen, Cuong Nguyen, Robert Xiao, Dongwook Yoon

In Proceedings of UIST 2023

PoseVEC: Authoring Adaptive Pose-aware Effects Using Visual Programming and Demonstrations

Yongqi Zhang, Cuong Nguyen, Rubaiat Habib Kazi, Lap-Fai (Craig) Yu

In Proceedings of UIST 2023

VideoDoodles: Hand-Drawn Animations on Videos with Scene-Aware Canvases

Emilie Yu, Kevin Blackburn-Matzen, Cuong Nguyen, Oliver Wang, Rubaiat Habib Kazi, Adrien Bousseau

In Proceedings of ACM Transactions on Graphics (SIGGRAPH) 2023

Using Online Videos as the Basis for Developing Design Guidelines: A Case Study of AR-based Assembly Instructions

Niu Chen, Frances Sin, Laura Herman, Ivan Song, Dongwook Yoon

In Proceedings of ISS 2023

PointShopAR: Supporting Environmental Design Prototyping Using Point Cloud in Augmented Reality

Zeyu Wang, Cuong Nguyen, Paul Asente, Julie Dorsey
In Proceedings of *CHI 2023*

WarpY: Contextual and Multi-view Indirect 3D Curve Sketching in Augmented Reality
Rawan Alghofaili, Cuong Nguyen, Vojtech Krs, Nathan Carr, Radomir Mech, Lap-Fai Yu
In Proceedings of *IEEE VR 2023*

Rapido: Prototyping Interactive AR Experiences through Programming by Demonstration
Germn Leiva, Jens Emil Sloth Grnbk, Clemens Nylandsted Klokmose, Cuong Nguyen,
Paul Asente, Rubaiat Habib Kazi
In Proceedings of *UIST 2021*

DistanciAR: Authoring Site-Specific Augmented Reality Experiences for Remote Environments
Zeyu Wang, Cuong Nguyen, Paul Asente, Julie Dorsey
In Proceedings of *CHI 2021*

TransceiVR: Bridging Asymmetrical Communication Between External and VR Users
Balasaravanan Thoravi Kumaravel, Cuong Nguyen, Stephen DiVerdi, Bjoern Hartmann
In Proceedings of *UIST 2020*

View-Dependent Effects For 360 Virtual Reality Video
Jeremy Hartmann, Stephen DiVerdi, Cuong Nguyen, Daniel Vogel
In Proceedings of *UIST 2020*

Pronto: Rapid Augmented Reality Video Prototyping Using Sketches and Enaction
Germán Leiva, Cuong Nguyen, Rubaiat Habib Kazi, Paul Asente
In Proceedings of *CHI 2020*

Slicing Volume: Hybrid 3D/2D Multi target Selection Technique for Dense Virtual Environments
Roberto A. Montano-Murillo, Cuong Nguyen, Rubaiat Habib Kazi, Sriram Subramanian, Stephen
DiVerdi, Diego Martinez-Plasencia
In Proceedings of *IEEE VR 2020 (Conference Paper)*

Challenges and Design Considerations for Multimodal Asynchronous Collaboration in VR
Kevin Chow, Caitlin Coyiuto, Cuong Nguyen, Dongwook Yoon
In Proceedings of *ACM CSCW 2019*

TutoriVR: A Video-based Tutorial System for Design Applications in Virtual Reality
Balasaravanan Thoravi Kumaravel, Cuong Nguyen, Stephen DiVerdi, Bjoern Hartmann
In Proceedings of *CHI 2019*

Designing In-Headset Authoring Tools for Virtual Reality Video
Cuong Nguyen
Ph.D. Dissertation in Computer Science, USA, December 2017

Depth Conflict Reduction for Stereo VR Video Interfaces
Cuong Nguyen, Stephen DiVerdi, Aaron Hertzmann, Feng Liu
In Proceedings of *CHI 2018*

CollaVR : Collaborative In-Headset Review for VR Video
Cuong Nguyen, Stephen DiVerdi, Aaron Hertzmann, Feng Liu
In Proceedings of *UIST 2017*

Vremiere: In-Headset Virtual Reality Video Editing
Cuong Nguyen, Stephen DiVerdi, Aaron Hertzmann, Feng Liu
In Proceedings of *CHI 2017 Best Paper Honorable Mention Award*

Gaze-based Notetaking for Learning from Lecture Videos
Cuong Nguyen and Feng Liu
In Proceedings of *CHI 2016*

Hotspot: Making Computer Vision More Effective for Human Video Surveillance
Cuong Nguyen, Wu-chi Feng, and Feng Liu

Information Visualization (2016)

Making Software Tutorial Video Responsive

Cuong Nguyen and Feng Liu

In Proceedings of *CHI 2015* **Best Paper Honorable Mention Award**

Direct Manipulation Video Navigation on Touch Screens

Cuong Nguyen, Yuzhen Niu, and Feng Liu

In Proceedings of *MobileHCI 2014*

Direct Manipulation Video Navigation in 3D

Cuong Nguyen, Yuzhen Niu, and Feng Liu

In Proceedings of *CHI 2013* **Best Paper Honorable Mention Award**

Video Summagator: An Interface For Video Summarization and Navigation

Cuong Nguyen, Yuzhen Niu, and Feng Liu

In Proceedings of *CHI 2012*

Issued Patents

P8804-US Dynamically Rendering 360-Degree Videos Using View-Specific-Filter Parameters

P6845-GB Collaborative Review of Virtual Reality Video

P6606-US Facilitating editing of virtual-reality content using a virtual-reality headset

P6845-US2 Collaborative Virtual Reality Anti-Nausea and Video Streaming Techniques

P6845-US1 Collaborative Interaction with Virtual Reality Video

P7511-US Dynamically Modifying Virtual and Augmented Reality Content to Reduce Depth Conflict Between User Interface Elements and Video Content

P8321-US Interfaces and Techniques to Retarget 2D Screencast Videos into 3D Tutorials in Virtual Reality

P9279-US Augmented Video Prototyping

P8425-US Selecting Objects Within A Three-Dimensional Point Cloud Environment

P8321-US-DIV1 3D Simulation of A 3D Drawing in Virtual Reality

P10088-US Systems for Augmented Reality Authoring of Remote Environments

P11028-US Responsive Video Canvas Generation

Honors & Awards

Technology & Engineering Emmy Award

2025

Best Paper Honorable Mention Award, ACM CHI

2017

Best Paper Honorable Mention Award, ACM CHI

2015

Best Paper Honorable Mention Award, ACM CHI

2013

Activities

Invited talks

Building GenAI-Powered Tools for Editable Visual Effects

Stanford University (November 2025) [details](#)

Computational text-based interactions for spatial creativity

New York University (April 2025)

On-device creative authoring for virtual and augmented reality

George Mason University's Distinguished Lecture Series (November 2020)

Yale University (April 2021)

Portland State University (April 2021)

Project Pronto: Augmented Reality Video Prototyping
University of British Columbia (April 2021)

Designing In-Headset Authoring Tools for Virtual Reality Video
UC Berkeley (November 2018)
Stanford University (November 2018)

Services

Associate Chair for ACM CHI 2020, ACM CHI 2022, ACM UIST 2024.

Reviewers for IEEE VR, ACM UIST , ACM ISS, ACM CHI, ACM Multimedia, IEEE Transactions on Multimedia, Information Visualization, ACM SIGGRAPH ASIA.

Interns supervised

Bala Kumaravel, UC Berkeley
Roberto Antonio Montano Murillo, University of Sussex
Megha Nawhal, Simon Fraser University
German Leiva, Universite Paris-Saclay
Jeremy Hartmann, University of Waterloo
Zach (Zeyu) Wang, Yale University
Rawan Alghofaili, George Mason University
Yongqi Zhang, George Mason University
Mary Zhu, Stanford University
Cory Ilo, Virginia Tech,
Chen Chen, UC San Diego
Claudia Osorio, University of Southern California
David Lin, Carnegie Mellon University
Xia Su, University of Washington
Yunxiang Zhang, New York University

Skills

Web application (Typescript), backend and machine learning experiments (Python), Commercial LLM APIs (OpenAI, Gemini), user study design, quantitative evaluation, model fine-tuning.