

<b>Education</b>	<b>Portland State University</b> Ph.D. in Computer Science	2012 - 2017
	<b>Portland State University</b> Bachelor of Science in Computer Science	2010 - 2012
	<b>Ho Chi Minh City University of Science</b> Bachelor of Science in Computer Science	2007 - 2009
<b>Research Interests</b>	Human-Computer Interaction Virtual Reality Augmented Reality Motion Graphics Authoring	
<b>Honors &amp; Awards</b>	<b>Best Paper Honorable Mention Award, ACM CHI</b>	2017
	<b>Presidential Award for Academic Achievements, Portland State University</b>	2017
	<b>Maseeh Fellowship, Portland State University</b>	2015
	<b>Best Paper Honorable Mention Award, ACM CHI</b>	2015
	<b>Best Paper Honorable Mention Award, ACM CHI</b>	2013
<b>Experience</b>	<b>Research Scientist</b> 601 Townsend St, San Francisco, CA 94103	Adobe Research 30 Oct 2017 – present
	My research lies at the intersection of Human-Computer Interaction (HCI) and various creative domains such as virtual and augmented reality (VR/AR), video editing, and 3D design. I study how we can leverage the power of immersive and AI technologies to help people create and collaborate more effectively. I enjoy building delightful authoring experiences driven by machine learning and computer vision, and studying how these technologies can be used to augment human creativity. My research has led to filing of 27 patent applications and more than 20 publications at top-tier conferences in HCI.	
I also work closely with product teams in all steps of technology transfer, including design, prototyping, engineering and serve on Adobe's internal immersive technology patent reviewing committee.		
Research themes		
<ul style="list-style-type: none"><li>• <i>Motion Graphics authoring</i>: publication at UIST 2023; technology transfer in Adobe Express.</li><li>• <i>VR/AR authoring</i>: rapid AR prototyping (CHI 2020, <i>Adobe Max 2019 live demo</i>, UIST 2021), remote AR authoring (CHI 2021), authoring XR experiences driven by LLM (UIST 2023).</li><li>• <i>Seamless VR communication tools</i>: video tutorial in VR (CHI 2019), asynchronous VR collaboration (CSCW 2020), asymmetrical VR communication (UIST 2020).</li><li>• <i>VR video editing</i>: publications in CHI 2017, UIST 2017, CHI 2018, UIST 2020; technology transfer in Premiere Pro and After Effects.</li></ul>		
Tech transfer		
<ul style="list-style-type: none"><li>• <i>Face-ware video captioning</i>: Shipped in Adobe Express in 2023.</li><li>• <i>Equirect Navigator</i>: Shipped in Premiere Pro in March 2018. Enable users to see the entire 360 footage in a rectilinear format and quickly change viewpoint.</li><li>• <i>Theater Mode</i>: Shipped in Premiere Pro and After Effects in October 2018. Enable non-VR editors to preview rectilinear footage in a home theater environment in VR.</li></ul>		

## Research Intern

San Francisco, CA

Work with Stephen DiVerdi and Aaron Hertzmann in the Creative Technologies Lab to research and develop new interfaces for Virtual Reality.

Adobe Research

06 June 2016 – 09 Dec 2016

### Research projects

- *Vremiere: In-headset Virtual Reality Video Editing (Summer 2016)*: Develop a video editing system that allows editors to edit spherical video in the Oculus Rift headset. Outcomes:
  - Accepted paper and best paper honorable mention award at ACM CHI 2017.
  - 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](#).
- *CollaVR : Collaborative In-Headset Review for VR Video (Fall 2016)*: Develop an application that enables multiple filmmakers to collaborate and review VR video together while fully immersed in VR.

## Graduate Research Assistant

Portland, OR

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

Portland State University

15 Sep 2012 – 16 Sep 2017

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

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

## Activities

### Invited talks

*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.

Associate Chair for ACM CHI 2022.

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, UCSD

### **Technical Skills**

Web development (Typescript, Javascript, React)  
Machine Learning (Python)  
System development (C++)  
AR/VR/3D development (OpenGL, Shader, ARKit, Swift, Unity)  
Video processing (OpenCV)  
Statistical analysis (SPSS)

### **References**

Stephen DiVerdi, Principal Scientist, mentor/collaborator at Adobe Research, [diverdi@adobe.com](mailto:diverdi@adobe.com)  
Mira Dontcheva, Principal Scientist, manager at Adobe Research, [mirad@adobe.com](mailto:mirad@adobe.com)  
Rubaiat Habib, Senior Research Scientist, collaborator at Adobe Research, [rhabib@adobe.com](mailto:rhabib@adobe.com)

Feng Liu, Associate Professor, PhD advisor at Portland State University, [fliu@cs.pdx.edu](mailto:fliu@cs.pdx.edu)  
Dongwook Yoon, Assistant Professor, university collaborator at University of British Columbia, [yoon@cs.ubc.ca](mailto:yoon@cs.ubc.ca)