VIVIAN LIU

Portfolio — https://vivian-liu.com/ | **Email** —vivian@cs.columbia.edu

EDUCATION

Columbia University, PhD Candidate in Computer Science — 2020 - 2026
Advisor — Lydia Chilton

UC Berkeley, BA Computer Science, BA Cognitive Science — 2015 - 2019
Graduated Distinction with Certificate in New Media

WORK EXPERIENCE

Google Deepmind, People + AI Research Team — Student Researcher — SEP 2024 - FEB 2025

- Designed novel techniques to increase AI agent perception with real-time data from sensors.
- Created prototype for Project Astra demonstrating novel human-AI interactions involving chat and camera.
- Mentors: Alex Fiannaca, Carrie Cai, Michael Terry

Adobe Research, Co-Creation Audio Video Animation — PhD Intern — JUN 2023 - APR 2024

- Designed and developed LogoMotion, an AI code generation system for creating and editing animation.
- Mentors: Rubaiat Habib, Li-Yi Wei, Matt Fisher, Timothy Langlois

Autodesk Research, HCI & Vis Group — PhD Intern and Consultant — MAY 2022 - DEC 2022

- Designed and implemented 3DALL-E, a generative tool for CAD support. Tool was patented and tech transferred into Fusion 360 as Project Salvador
- Mentors: Jo Vermeulen, Justin Matejka

prefrontal cortex and **All Of It Now** — Freelance at design agencies — JAN 2020 - JUL 2020

- Designed AI art, mixed reality experiences for prefrontal cortex by training autoencoders and GANs.
- Prototyped IoT and sensor interactions for All of It Now.

Logitech Gaming — Design Technologist Intern — JUN 2019 - AUG 2019

- Created an AR experience integrated with product QR codes to encourage product stewardship and e-waste sustainability.

Hybrid Ecologies Lab, UC Berkeley — HCI Research Assistant — JAN 2017 - DEC 2017

- Developed NLP back-end and data visualization front-end for a research project helping users engage with writing style.

USC Institute of Creative Tech, Los Angeles — HCI Research Intern — JUN 2017 - AUG 2017

- Full-stack development on a project called Generalized Intelligence Framework for Tutoring for the Army Research Lab.

First Data, Sunnyvale, CA — Data Science Intern — JUN 2016 - AUG 2016

- Developed an interactive map feature to help data scientists visually explore financial and socioeconomic data from the census.

AWARDS

National Science Foundation Graduate Research Fellow $138,000 — 2020 - 2025

Gary Marsden Travel Award, CHI 2021 — 2021

Grace Hopper Conference Research Scholar, Computing Research Association - Women $3,000 — 2019

Innovation Catalyst Grantee, Jacobs Institute of Design, $2,000 — 2018

Leadership Award, UC Berkeley Cal Alumni Association, $3,000 — 2015

PATENTS

Techniques for Using Multimodal Machine Learning Models to Generate Design Alternatives for Three-Dimensional Objects — 2024

V Liu, JK Vermeulen, GW Fitzmaurice, JF Matejka

US Patent App. 18/446,339

PUBLICATIONS

P1. LogoMotion: Visually Grounded Code Synthesis for Creating and Editing Logo Animation

Vivian Liu, Rubaiat Habib Kazi, Li-Yi Wei, Matt Fisher, Timothy Langlois, Seth Walker, Lydia Chilton

Conference Paper at CHI 2025.

P2. DynEx: Dynamic Code Synthesis with Structured Design Exploration for Accelerated Exploratory Programming

Jenny Ma, Karthik Sreedhar, **Vivian Liu**, Sitong Wang, Pedro Alejandro Perez, Riya Sahni, Lydia B. Chilton

Conference Paper at *CHI 2025*.

P3. Generative Disco || Digital ``Double Hatters": Augmenting Audiovisual Creative Work with a Generative Text-to-Video Workflow

Vivian Liu, Tao Long, Jenny Ma, Nathan Raw, Jiaxin Yang, Claudia Tang, Lulu Wang, Yumo Yang, Lydia

Chilton.

Conference Paper at *HICCS 2025*.

P4. 3DALL-E: Integrating Text-to-Image AI in 3D Design Workflows

Vivian Liu, Jo Vermeulen, Justin Matejka, George Fitzmaurice.

Conference Paper at *DIS 2023*.

P5. CLIP-Sculptor: Zero-shot Generation of High Fidelity and Diverse Shapes from Text

Aditya Sanghi, Rao Fu, **Vivian Liu**, Karl Willis, Hooman Shayani, Amir Khasahmadi, Srinath Sridhar, Daniel Ritchie.

Conference Paper at *CVPR 2023*.

P6. Opal: Multimodal Image Generation for News Illustration.

Vivian Liu, Han Qiao, Lydia Chilton.

Conference Paper at *UIST 2022*.

P7. Design Guidelines for Prompt Engineering Text-to-Image Generative Models.

Vivian Liu, Lydia Chilton.

Conference Paper at *CHI 2022*.

P8. Improving Subject Representation in AI Generated Art: Design Guidelines for Using Image Prompts with Text-to-Image Generative Models.

Han Qiao**, Vivian Liu**, Lydia Chilton.

Conference paper at *Creativity and Cognition 2022*.

P9. Sparks: Inspiration for Science Writing using Language Models.

Katy Gero, **Vivian Liu**, Lydia Chilton. Conference paper at *DIS 2022* and workshop paper at *ACL 2022 In2Writing Workshop*.

P10. What Makes Tweetorials Tick: How Experts Communicate Complex Topics on Twitter.

Katy Gero, **Vivian Liu**, Lydia Chilton. Conference paper at *CSCW 2021*.

P11. VisiFit: Structuring Iterative Improvement for Novice Designers.

Lydia Chilton, Ecenaz Ozmen, Sam Ross, **Vivian Liu.** Conference Paper at *CHI 2021*.

P12. Interacting with Literary Style Through Computational Tools.

Sarah Sterman, Evey Huang, **Vivian Liu**, Eric Paulos. Conference Paper at *CHI 2020*.

WORKSHOP PAPERS

W1. MIRACLE: An Online, Explainable Multimodal Interactive Concept Learning System

Ansel Blume, Khanh Duy Nguyen, Zhenhailong Wang, Yangyi Chen, Michal Shlapentokh-Rothman, Xiaomeng Jin, Jeonghwan Kim, Zhen Zhu, Jiateng Liu, Kuan-Hao Huang, Mankeerat Sidhu, Xuanming

Zhang, **Vivian Liu**, Raunak Sinha, Te-Lin Wu, Abhay Zala, Elias Stengel-Eskin, Da Yin, Yao Xiao, Utkarsh Mall, Zhou Yu, Kai-Wei Chang, Camille Cobb, Karrie Karahalios, Lydia Chilton, Mohit Bansal, Nanyun Peng, Carl Vondrick, Derek Hoiem, Heng Ji
Demo at *ACMMM 2024 Technical Demos and Videos Program*

W2. Analyzing the Cultural Relevance of AI Generated Art.

Aaron Jackson**, Vivian Liu**, Lydia Chilton. Workshop paper at *CHI 22 Generative AI and HCI Workshop.*

W3. Neurosymbolic Generation of 3D Animal Shapes through Semantic Guidance.

Vivian Liu, Lydia Chilton. Demo at *IUI 2021* Workshop on Human-AI Co-Creation with Generative Models.

W4. Quantifying Eye Disabilities with Computer Vision Augmented Glasses.

Vivian Liu. Extended abstract and student poster at *International Symposium for Academic Makerspaces 2018*.

INVITED TALKS & PRESENTATIONS

University of Michigan HCI Seminar	NOV 2025
Hong Kong University of Science and Technology Seminar	OCT 2025
Demo at Andreessen Horowitz (a16z)	MAY 2025
Berkeley Institute for Design Seminar	JAN 2025
Brown University Visual Computing Seminar	NOV 2024
STEM From Dance, Girls Rise Up (NGO Program)	JUL 2021, 2022, 2023, 2024
SPARK ANIMATION AI Track	OCT 2022
Program Synthesis Lab @ Barnard Host: Prof. Mark Santolucito	MAY 2022
Fashion Institute of Technology Host: Prof. Maria Hwang	DEC 2021
Design @ Columbia	SEP 2021

TEACHING

Designing for Generative AI – TA	FALL 2022, 2023

ACADEMIC SERVICE

CHI 2025 Program Committee, Design Subcommittee Associate Chair

UIST 2023 Organizing Committee, Web Chair

Columbia CS Department Service Award 2022

Program Committee for ACL 2022 Workshop (in2writing)

Reviewer for:
CHI2022 - 2025, UIST 2022 - 2025, DIS 2023 - 2025, SIGGRAPH ASIA 2024 - 2025
15 Recognitions for Outstanding Reviews

VOLUNTEERING

UCSF Neuroscape – Volunteer with Director of Interactive Media — 2018

- Experimented with eye-tracking tech, virtual reality, and Kinect body sensors at translational neuroscience lab.

Berkeley AI Research (BAIR) Undergrad Mentoring Program – Mentee — 2017

- Selected through recommendation and performance within CS department
- Mentors: Dylan Hadfield-Menell and Angjoo Kanazawa

United Tech for Kids (NGO), Peru— Design Engineering Instructor — JAN 2017 - JUN 2017

- Taught coding & computer-aided design at Colegio Santa Maria, as part of an effort to introduce makerspaces to schools in Peru and Colombia
- Created assistive tech mouse physical computing peripheral for a quadriplegic local, which was featured on local news

Creative Coding Workshops — Bay Area libraries and schools — NOV 2017 - MAR 2017

- Developed STEAM-oriented teaching material about creative coding
- Taught workshops reaching a total of 100 students aged 5 to 17

Girls in Engineering — Open Prosthetics Workshop Mentor — AUG 2018

- Mentored girls in 3D printing and makerspace shop skills to create Raptor Hand, an open-source hand prosthetic

ART EXHIBITIONS

Minnesota Street Pop Up: *Simulations & Stimulations* — JUN 2019

Worth Ryder Art Gallery, Vision + Light — FEB 2019