

Teaching <https://ktrosenberg.github.io/teaching/>

New York University Courant Institute; New York, NY:

Visiting Assistant Professor (Teaching / Clinical Faculty)

Sept 2025 - current

- Emphasis on creative and visual learning, Fall 2025: Intro to Programming, Data Structures

Adjunct Assistant Professor, Introduction to Programming

Jan 2024 - May 2024, Sept 2024 - Sept 2025

- 5x, mentored ~15-40 student cohorts, created original teaching material and assignments

Teaching Assistant / Recitation Leader (2x), Data Structures (Prof. Klukowska)

Sept 2020 - May 2021

- Guided ~20 students in building skills and enthusiasm for data structures and algorithms
- Created my own supplementary material and exercises for recitations and office hours

Course Tutor, Introduction to Programming in Python (Prof. Kapp, Prof. Bloomberg)

Sept 2016 - Dec 2016

- Led two tutoring sections, guided beginner students in learning fundamental programming skills

Sole Course Tutor, Data Structures – Advanced Curriculum (Brett Bernstein)

June 2016 - Aug 2016

- Sole tutor, held office hours and taught extended curriculum e.g. dynamic programming, graph theory; worked with students to develop problem-solving skills

Private One-on-One Tutoring, Data Structures (NYU Courant Curriculum)

2021 - Various

Projects <https://ktrosenberg.github.io/projects.pdf> | <https://github.com/KTRosenberg>

DrawTalking: Building Interactive Worlds by Sketching and Speaking (thesis) May 2020 - present

- Project leader, built project from the ground-up. Led research, design, and team direction.
- Designed and prototyped a system for building interactive worlds by sketching and speaking.
 - Users create interactive scenes and tell stories simultaneously with sketching + speaking
 - Programming-like capability without needing code; for spontaneous creative exploration on a canvas (e.g. animation, designs, storytelling, games, simulation)
 - Human-AI interaction balancing fluid input and user control with machine automation
 - Designed for the iPad from the ground-up; custom interactions, C++, Metal GPU API
 - Terms: intelligent systems and interfaces, graphics, NLP, language, compilers, games
 - Designed and performed user studies (evaluation, interviews, artifact-generation)
- Web Page with Demo Videos and Paper (accepted to UIST 2024) - code available by-request
 - <https://ktrosenberg.github.io/drawtalking/> | <https://arxiv.org/abs/2401.05631>

Future Classroom XR, MetaRoom VR Platform (Lead developer on team project) Aug 2019 - 2022

- Architected cross-device VR / desktop system for live-coding multi-user experiences for WebXR
- Multiple co-located VR users experience live changes while a desktop user programs the world
- Built for a graduate VR class – for the professor's live coding, student assignments, final projects

Chalktalk (Key UI / UX programmer and collaborator) Spring 2017 - present

- Tool for live talks using interactive animated drawings that come-to-life via sketch recognition

Chalktalk Virtual Reality - Multi-User Spatial Presence and 3D Drawing Canvases Sept 2018 - May 2019

- Co-engineered (team of 2) an extension of Chalktalk into a multi-user VR system supporting multiple spatial configurations of users and virtual drawing surfaces. Unity Engine, JavaScript.
- CHI 2019 Late Breaking Work research paper: <https://dl.acm.org/doi/10.1145/3290607.3312761>
- Exhibited demo at Oculus Connect 6 (2019) (Now Meta)

Personal Projects | <https://github.com/KTRosenberg>

Custom Renderer for Interface Prototyping: StrataDraw, written in C++, Metal Graphics Mar 2018 - present

- Renderer for prototyping 2.5D multi-layered user interfaces and games
- Testbed for modern computer graphics and APIs, drives graphics for Project "DrawTalking"

Projection Draw, Virtual Reality prototype in Unity Nov 2017 - Mar 2018

- Enables interactive sketching in 3D, using the space around you for the creative drawing surface
- The user draws lines that are projected onto object surfaces seen from the user's point-of-view

Skills: Programming Languages, Tools, Productivity Software

C, C++, Python, C#, JavaScript, NodeJS, Java, HTML, CSS, Bash, WASM, ObjC, Swift, iOS, iPadOS, macOS, UIKit, AppKit, ARKit, OpenGL, WebGL, GLSL, Metal Graphics API / Shaders, Unity Engine, WebXR, XR, AR, VR, spatial devices e.g. Meta Quest, Applied AI / ML UX & UI e.g. generative / GPT, Xcode, Git, Logic Pro, Steinberg Cubase DAW (Audio), Adobe Photoshop, Illustrator, Figma, Final Cut Pro, MS Office, GSuite

Music, Art, Hobbies

- Music: composition and production of original works, MIDI and audio editing
 - <https://soundcloud.com/synchronizerman>
- Artwork: concept drawings, game maps, logos; pencil, computer-aided
- Language: German (intermediate) - spoken, written, translation