

Karl Toby Rosenberg, Ph.D

CS & HCI Researcher, R&D Interactions Prototyper & Engineer

GitHub: <https://github.com/KTRosenberg>

LinkedIn: <https://www.linkedin.com/in/ktrosenberg/>

+1 (347) 598 7068

karltobyrosenberg@nyu.edu

Projects

DrawTalking: Building Interactive Worlds by Sketching and Speaking (Thesis Project)

- Check-out the website (Video demos and paper): <https://ktrosenberg.github.io/drawtalking/>
- Prototype a system from the ground-up for building interactive worlds by sketching and speaking and telling stories at the same time. Applications to human-AI collaboration and natural language creativity interfaces; Enables programming-like capability without code.
- Sole programmer, designer, built project from the ground-up. Led ideation, design, and team direction.
- Designed and ran user studies (qualitative feedback, interviews, artifact-generation)
- **Accepted to UIST '24 Systems HCI Conference** <https://uist.acm.org/2024/>
- Open-source code to-be-released during the conference in October; native iPadOS & macOS C, C++, Swift, Metal GPU API, Python, JavaScript
- Extra Demo showing an LLM / Gen-AI being used to make DrawTalking's language input more flexible
 - https://youtu.be/DEtfOi_fCPI

Note: the following projects have more information (images, videos) on their GitHub pages:

XR MetaRoom: Multi-user WebXR Engine with Built-in Live Coding

- Main architect / engineer for WebVR / WebXR project for multi-user VR, built basically from the ground-up and used for my advisor's VR class's assignments and final projects.
- I emphasized live reloading of scripts and shaders for fun rapid prototyping and improvised world-building and storytelling. A desktop user could edit code and simultaneously, VR users could experience the changes interactively.
- **Page:** <https://github.com/KTRosenberg/XR-MetaRoom> ; JavaScript, WebGL, WebXR

MagicWhiteboards / Multiuser Workstation VR

- Multiuser VR sketching with dynamically-customizable sketching surfaces and user-positioning (for CHI LBW research I collaborated on)
- **Page** <https://github.com/KTRosenberg/Exploring-Configuration-of-Mixed-Reality-Spaces-for-Communication>

ProjectionDraw VR

- My first VR project, focused on making 3D sketching interaction easier by enabling drawing on geometry and surfaces
- **Page:** <https://github.com/KTRosenberg/ProjectionDraw>

Custom 2D Game Rendering Engine and Editor Prototypes

- First experiments for a C++ and OpenGL mini game with sloped platformer physics, parallax scrolling, live reloading of C++ code, and custom music with toggle-able instrument tracks
- **Page:** <https://github.com/KTRosenberg/Game-and-Graphics-SDL-openGL>

Unfolding Object Web Art Restoration Project

- Team collaboration with the John F. Simon Guggenheim Time-Based Media Lab to bring a web artwork to new audiences (recreating a digital artwork faithfully from scratch with custom rendering)
- **Official Release Blog Post:** <https://www.guggenheim.org/articles/checklist/the-guggenheim-restores-john-f-simon-jr-early-web-artwork-unfolding-object>

Music

- <https://soundcloud.com/synchronizerman>