

I'm a recent doctoral graduate from the *Computer Graphics and User Interfaces Lab* at Columbia University, studying **AR/VR/MR/3D graphics, interactions and visualization techniques**, under Prof. Steven Feiner. I've worked on 30+ projects with academic and industry partners, contributed to several open source frameworks, advised 150+ independent research projects, and have published in *ACM UIST*, *CHI*, and *SUI*, and *IEEE ISMAR*, *VR*, and *IROS*. Looking for roles with high impact in the fields of spatial computing, XR, graphics, and HCI.

## EDUCATION

### Columbia University, New York, NY

Doctor of Philosophy, Computer Science, June 2021

Master of Science, Computer Science, 2012; Master of Philosophy, Computer Science, 2021

Advisor: *Professor Steven Feiner*, Thesis: *XR Development with the Relay & Responder Pattern*

### Polytechnic Institute of New York University, Brooklyn, NY

Bachelor of Science, Computer Science, Summa Cum Laude, Graduated June 2010

NYU-Polytechnic Institute Presidential Scholarship, Lamelson Scholarship.

## EXPERIENCE

### Columbia University, New York, NY

September 2019– June 2021

*PhD Student—Computer Graphics and User Interfaces Lab (Prof. Steven Feiner)*

- Studied and developed **XR (AR/VR/MR) and haptic interaction and visualization** techniques, associated applications, and supporting frameworks across several domains including medicine, maintenance, aerospace, music, and rehabilitation, working with technologies including HoloLens [2], Oculus, SteamVR, and Unity
- Published in *ACM UIST*, *CHI*, and *SUI*, and *IEEE ISMAR*, *VR*, and *IROS*
- Managed and advised 15–20 independent student project courses per semester under Prof. Feiner
- Teaching assistant for *3D User Interfaces and Augmented Reality* and *Topics in AR/VR*

### Columbia University, New York, NY

September 2010–August 2019

*Research Associate—Computer Graphics and User Interfaces Lab (Prof. Steven Feiner)*

- Studied and developed **XR interaction techniques**, associated applications, and supporting frameworks
- Managed and advised 5–15 student project courses per semester under Prof. Feiner
- Teaching assistant for *3D User Interfaces and Augmented Reality*

## SELECTED PROJECTS (Additional 28 projects listed on my website)

### Collaborative Exploration of Urban Data in Virtual and Augmented Reality

*A collaborative AR/VR multi-user system for visualizing and interacting with social and municipal urban data*

### Remote Collaboration in AR and VR using Virtual Replicas

*A remote expert guides a local technician in repairing an airplane engine using a hybrid XR system*

## SELECTED PUBLICATIONS (Additional 26 publications listed on my website)

Krösl, K., Elvezio, C., Luidolt, L. R., Hürbe, M., Karst, S., Feiner, S., & Wimmer, M. (2020). CatARact: Simulating cataracts in augmented reality. *2020 IEEE ISMAR*. <https://doi.org/10.1109/ISMAR50242.2020.00098>

Elvezio, C., Sukan, M., & Feiner, S. (2018). Mercury: A messaging framework for modular UI components. *2018 ACM CHI*. <https://doi.org/10.1145/3173574.3174162>

## OPEN SOURCE PROJECTS

### Mercury Messaging (<https://github.com/ColumbiaCGUI/MercuryMessaging>)

*A framework facilitating XR development through cross-component communication in Unity*

### GoblinXNA (<http://monet.cs.columbia.edu/projects/goblin/>)

*A platform for research on 3D user interfaces, including mobile AR and VR*

## PATENT APPLICATIONS

Feiner, S., Loeb, G., Grinshpoon, A., Sadri, S. and Elvezio, C., Columbia University, 2020. Systems and methods for augmented reality guidance. US. Patent Application 16/796,645.

Elvezio, C., Sukan, M., Oda, O., Feiner, S. and Tversky, B., Columbia University, 2016. Systems and methods for providing assistance for manipulating objects using virtual proxies and virtual replicas. US. Patent Application 15/146,764.

## SKILLS

**Graphics Platforms:** Unity, Unreal, OpenGL, Direct3D

**Languages:** C, C++, C#, GLSL, HLSL, Java, Python, PHP, CUDA

**Hardware/API:** Oculus, Vive, SteamVR, MRTK, HoloLens, Vuforia, ARCore, ARToolkit

**OSs:** Windows (.NET/COM), Mac OS X, Linux, iOS, Android

**3D Graphics:** Multi-core rendering, simulation, GPU and game engine development

**UX and UI design:** JavaScript, XAML, HTML, Figma, CSS, Bootstrap

**Project Management:** Asana, Trello, Jira, Scrum (with Agile)