Ryan Kim

(+1) 347–282–6995 | kim.ryan@nyu.edu
https://www.rkim.dev | https://www.linkedin.com/in/kimryan0416 | https://github.com/kimryan0416

Education

Ph.D. Candidate in Computer Science — Sep. 2022 — Current
Department of Computer Science and Engineering, New York University — *New York City, NY, USA*

- *Topics*: Augmented/Virtual Reality (AR/VR), Virtual Agents, Urban Simulation
- *Advisor*: Dr. Paul M. Torrens
- *Funding*: U.S. DoE - Graduate Assistance in Areas of National Need (GAANN) - award P200A210096

Master of Engineering in Computer Science — Aug. 2019 — May 2020
Cornell Tech, Cornell University — *New York City, NY, USA*

- *Topics*: Algorithms and Data Structures, AR/VR, User Experience (UX) Research Methods
- *Honors*: Cornell Tech Merit Scholarship

Bachelor of Arts in Information Science — Aug. 2014 — May 2018
College of Arts & Sciences, Cornell University — *Ithaca, NY, USA*

- *Topics*: Web Design / Programming, Human-Computer Interaction (HCI), UX Design

Research Interests

My research resides at the intersection of augmented and virtual reality (AR/VR), human-computer interaction (HCI), and urban simulation. I am particularly interested in two key questions: 1) how AR/VR and wearable sensors can facilitate measurements of the physical and physiological conditions of their users, and 2) how virtual geographic environments (VGEs) can help us better understand both micro and macroscopic urban phenomena in the real world. I explore these questions by inserting participants into VR-based VGEs and studying their emergent interactions with dynamic virtual agents. I empirically quantify these interactions through body/gaze tracking with IMUs, gyroscopes, and wearable cameras, as well as electroencephalography (EEG) with mobile brain-computer interfaces (BCIs).

Publications

Looking for Answers: Gaze and Brain Activity as Simulation Outputs — June 22, 2025
ACM SIGSIM '25, 186–187. doi: 10.1145/3726301.3731539

Boundary SPH for Robust Particle–Mesh Interaction in Three Dimensions — May 16, 2024
Algorithms 2024, 17, 218. doi: 10.3390/a17050218

Building Verisimilitude in VR With High-Fidelity Local Action Models — June 24, 2024
ACM SIGSIM PADS '24, 119–130. doi: 10.1145/3615979.3656060

Evoking embodiment in immersive geosimulation environments — Feb. 29, 2024
Annals of GIS 2024, 30(1), 35–66. doi: 10.1080/19475683.2024.2316601

Using Immersive Virtual Reality to Study Road-Crossing Sustainability — Feb. 4, 2024
Sustainability 2024, 16(3), 1327. doi: 10.3390/su16031327

Academic Experiences

Teaching Assistant — Aug. 2025 — Current
CS–GY 6313-B — Information Visualization — *New York University*

- *Supervisor*: Dr. Claudio Silva
- Prepared Observable notebooks, instructions, and grading guidelines for homework and project materials
- Managed lab recitations to provide auxiliary code exercises and increase student engagement with course concepts
- Supervised weekly Office Hours sessions to advise students on programming and project-related questions

Teaching Assistant Jan. 2024 — May 2024
CS–GY 6313 — Information Visualization *New York University*

- *Supervisor*: Dr. Qi Sun
- Prepared Python notebooks, instructions, and grading guidelines for homework and project materials
- Supervised weekly Office Hours sessions to advise students on programming and project-related questions

Research Intern June 2021 — Apr. 2022
Information Interaction Lab *University of Michigan*

- *Supervisor*: Dr. Michael Nebeling
- Collaborated on a qualitative study of the work patterns and needs of teachers using VR in education
- Conducted literature reviews of relevant papers evaluating VR-based learning modalities
- Coordinated tasks and deadlines to improve workflows and reduce miscommunication between team members

Teaching Assistant Aug. 2017 — May 2018
INFO 1300/2300 - Introductory / Intermediate Design and Programming for the Web *Cornell University*

- *Supervisor*: Dr. Kyle J. Harms
- Formulated grading guidelines on student projects for all teaching assistants during grading sessions
- Supervised weekly discussions and Office Hours to advise students on programming and design-related questions

Projects

EasierVRAssets | *Unity3D, C#, OpenXR* Jan. 2020 - Current

- *Github page*: https://github.com/kimryan0416/EasierVRAssets
- *OpenXR Tutorials*: https://rkimdev.notion.site/openxr-unity-development
- Created a collection of code scripts and prefab elements for easier *Meta Quest* development in Unity3D
- Scripted drag-and-drop components for joystick locomotion, teleportation, grabbing, and gaze tracking systems
- Wrote OpenXR tutorials to aid lab associates with headset-agnostic VR–Unity3D development and prototyping

The Traveler | *Unity3D, WebGL, C#, Blender, Figma* Oct. 2025 - Dec. 2025

- *Itch.io page*: https://rk2546.itch.io/traveler
- Directed the development of the 3D adventure game "The Traveler" for NYU's *CS-GY 6553 Game Design* course
- Implemented procedural terrain generation through Perlin noise, Voronoi tessellation, and DBScan clustering
- Optimized game performance on WebGL through level-of-detail (LOD) and frustrum culling on mesh objects
- Designed user interface icons and progress indicators through vector graphics editors and Unity's UI scripting tools

Method of Loci and Memory Recall in VR | *Unity3D, C#* Jan. 2020 — May 2020

- *Advisor*: Harald Haraldsson
- Directed an independent study to measure the effect of VR immersion and presence on memory recall
- Implemented in-game tools and user interfaces to allow mesh creation and modification during runtime in VR

VRKeyboard | *Unity3D, C#* Jan. 2020 — May 2020

- *Advisor*: Harald Haraldsson
- Spearheaded the design of soft keyboard interfaces for typing in VR, in cooperation with two student researchers
- Heuristically evaluated popular VR controllers for shared affordances that could be leveraged in VR typing

Professional Employment

Contractor: Curriculum Developer May 2021 – Aug. 2022
MIMO *Seoul, South Korea*

- Deployed a 14-module online curriculum based on Bloom's Taxonomy to teach 5k+ users about React development
- Implemented a Jest-based unit test framework for parsing and validating students' JavaScript and React.js code

Contractor/Consultant: UX Designer & Front-End Engineer Aug. 2020 – Apr. 2021
Tucan Fitness *Seoul, South Korea*

- Optimized the code and design aesthetics of Tucan Fitness' online interfaces for virtual race management and account registration, improving user retention by 170%
- Established a UX-based workflow for collecting, coding, and analyzing user interviews and feedback

Co-Founder: Chief Design Officer & Front-end Engineer Jan. 2020 – Feb. 2021
OnePlace *New York City, NY, USA*

- Co-found OnePlace with Cornell Tech alumni to develop an encrypted file-sharing web service for families
- Translated high-fidelity user interface wireframes into OnePlace's web application using React Native
- Evaluated OnePlace's UX front-end features in weekly sprints based on early adopter feedback and feature requests
- Consulted with co-founders on opportunities for company growth, outreach, and venture capital funding

Contractor/Consultant: Engineer July 2018 – Aug. 2019
eCornell, Cornell University *Ithaca, NY, USA*

- Developed a Node.JS-based auto-grader capable of parsing and grading students' HTML, CSS, and JavaScript
- Provided consultation to other eCornell courses on best methods to integrate unit testing into lesson material

Technical Skills

Programming & Markup Languages: C#, Python, HTML5, CSS3, JavaScript, PHP, SQL, C, C++
Frameworks & Libraries: OpenXR, React.js, React Native, Node.js, Angular, jQuery.js, D3.js
Developer Tools: Meta Quest/Quest 2/Quest 3/Quest Pro, Unity3D, Photoshop, Figma, After Effects, Git, Cinema4D