PhD Candidate in Human-AI interaction, Ricardo Gonzalez

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EDUCATION

Cornell University, Cornell Tech, New York, NY **Expected Dec 2025**
Doctor of Philosophy in Information Science – Human Computer Interaction, AI, and Connective Media
Awards - *Full scholarship recipient, Digital Life Initiative (DLI) fellowship recipient*

Universidad de Los Andes, College of Engineering, Bogota, Colombia **Jan 2020**
Bachelor of Computer and Systems Engineering

SPECIALIZED SKILLS

Back-end Development: C# (Unity), Python, Java, JavaScript, TypeScript
Front-end Development: React, React Native, Animejs, Greensock, NodeJS, Django, Jekyll
Mobile Developmennt: Swift, and React Native
Developer Tools: Github, Gitlab, Vscode, Visual Studio, Unity, JetBrains Suite, Postman, Jenkins, Jira, AWS
Domain Knowledge: Web accessibility, iOS Accessibility, OculusVR, XRI, 3D Printing, Laser Cutting, Prototyping
Language: Spanish (Native); English (fluent); Chinese (basic)

RESEARCH EXPERIENCE ROLES

Research Intern at Global Technologies Applied Research, *JPMorgan Chase & Co*, New York, NY **May-Aug 2024**
- Received return offer to continue to collaborate with Blair MacIntyre, Global Head of Immersive Technology and Spatial Computing Research at JPMC, Fannie Liu, and David Saffo to **improve digital Accessibility** at JPMC.
- Working with stakeholders to explore use cases of internally developed prototypes to improve accessibility of JPMC digital products.

Research Intern at Global Technologies Applied Research, *JPMorgan Chase & Co*, New York, NY **Jun-Aug 2023**
- Collaborated with Fannie Liu, and David Saffo, immersive technology researchers working under Blair MacIntyre leadership to **improve digital Accessibility** at JPMC.
- **Wrote** and **submitted** a **patent** for an **immersive data analysis technology**, usable by Blind and Low Vision people.
- **Developed MVP** of **patent** and **tested** with **screen reader users** and accessibility experts.

Visiting Researcher, *Columbia University*, New York, NY **May-Dec 2021**
- Collaborated with Professor Brian Smith and PhD candidate Vishnu Nair in a Game Accessibility research project; The **research paper**[1] written **was published in a top 1% conference in the HCI field.**
- Designed and coded 1 of 5 Accessible tools in a 3D adventure game, echolocation, to understand how visually impaired gamers acquire spatial information. — *C#, Unity*
- Carried out and analyzed 15 interviews to evaluate the effectiveness of our 5 Accessible tools for 3D adventure games.

Research Intern – Summer Research Fellowship, *Cornell Tech*, New York, NY **May-Sep 2019**
- Developed a pipeline for teachers of students with disabilities to **design and use interactive 3D printed models** to teach visually impaired students. — *Python, React, NodeJS, Swift*
- Redesigned a 3D modelling tool in Blender, Markit, through Python scripting. The tool **annotates 3D printed models** to interact with them through **Augmented Reality**. **Optimized models file size to 10% their original size.**
- Modified Talkit, the iOS application, to be compatible with the pipeline; Making it possible to download interactive models hosted on the website.

RESEARCH PUBLICATIONS

Accessible Nonverbal Cues to Support Conversations in Virtual Reality for Blind and Low Vision People. **July 2024**
Paper in ASSETS 2024 (Acceptance 30%)
- Designed a set of nonverbal cues for Blind and Low Vision People to use in VR conversations. — *C#*
- Conducted quantitative and qualitative analysis to assess the usefulness of the accessible cues in realistic conversations, and proposed design guidelines for nonverbal cues in VR. — *R*

Investigating Use Cases of AI-Powered Scene Description Applications for Blind and Low Vision People. **May 2024**
Paper in CHI 2024 (Acceptance 26.3%)
- Collaborated in a mixed abilities research team (Blind, Low Vision, and Sighted) to conduct a longitudinal study to understand how Blind and Low Vision people use AI tools to access visual information in their daily lives.

- Developed iOS application participants used during the study to interact with an AI model to access visual information of their surroundings. — *Swift*
- Developed backend pipeline to collect participants feedback, and log usage patterns of the application. — *AWS, Firebase*

Hands-On: Using Gestures to Control Descriptions of a Virtual Environment for People with Visual Impairments. **Demo in UIST2022 (Overall acceptance 25.9%)** **Oct 2022**

- We created a haptic glove that blind people can use to get descriptions of the environment with a set of hand interactions in Virtual Reality with OculusVR. — *C#, Unity, Wiring*
- Led proposal of research project and mentored 2 research interns to achieve their first academic publication.

Uncovering Visually Impaired Gamers' Preference for Spatial Awareness Tools Within Video Games. **Paper in ASSETS '22 (Acceptance 26.5%)** **Oct 2022**

- We discovered that position and orientation is the most important aspect to visually impaired gamers awareness of their surroundings and it is not well-served by current game mechanics' design. — *C#, Unity*

Towards a Generalized Acoustic Minimap for Visually Impaired Gamers. **Demo in UIST 2021 (Overall acceptance 21%)** **Oct 2021**

- We developed a prototype with four acoustic minimap techniques to enable visually impaired gamers to gain spatial awareness of a game environment. — *C#, Unity*

Molder: An Accessible Design Tool for Tactile Maps. **Paper in CHI 2020 (Acceptance 24.3%)** **Apr 2020**

- We designed a tool that can be used by visually impaired teachers to create 3D printed interactive models. Blind and Low Vision people can use Mobile AR to interact with these models. — *Python, Blender, Swift*

Tactiled: Towards more and better tactile graphics using machine learning. **Poster in ASSETS '19 (Acceptance 58%)** **Oct 2019**

PATENTS

Undisclosed – Currently in Submission, New York, NY **Aug 2023**

- Data Analysis tool for Blind and Low Vision people. Developed during internship at JPMorgan Chase & Co.

INVITED TALKS

"What Role Can A.I. Play in Blind and Low Vision People's Day-To-Day Experience?", New York, NY **Sep 2024**

- Invited as a panel speaker to the **arXiv Accessibility Forum 2024** to discuss about applications of AI in the daily lives of Blind and Low Vision people.

Designing Interactive AI Visual Guides for Blind and Low Vision People, New York, NY **June 2024**

- Invited to present in the **XR Access Symposium 2024** my research discussing the potential for AI as a digital assistant for Blind and Low Vision people in the real world but also in Virtual Reality.

SELECTED LEADERSHIP EXPERIENCE

Teacher Assistant – Virtual and Augmented Reality, New York, NY **Sep 2022-May 2023**

- **Composed course topic about VR/AR Accessibility** which was integrated into the official curriculum.

XR Access Research Network – Program Manager, New York, NY **Jan 2021-Aug 2022**

- **Work closely with Co-Founder, Dr. Shiri Azenkot**, to organize and **host 7 monthly seminars**, and moderated a panel at the XR Access Symposium 2022.
- **Recruited 7 community leaders in XR Accessibility** to share their research insights to an **audience of 400 Accessibility practitioners.**

XR Access Summer Internship Program – Research Mentor, New York, NY **May-Sep 2021, May-Sep 2022**

- **Led two research projects on Accessibility for People with Visual Impairments** and **mentored 7 undergraduate students** on the projects; Research papers[1,2] written **were published in a top 10% conference in the HCI field.**

ACTIVITIES and INTERESTS

Chair of Web design team of the ACM Special Interest Group on Accessible computing 2023 Conference in NYC. Responsible of the design, web development and deployment of the conference website.
Volleyball; Old School Runescape; Running.