

# Johann Wentzel

HCI Researcher, Interaction Prototyper • Virtual and Augmented Reality • Accessibility

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## Education

### University of Waterloo

Waterloo, ON

Doctor of Philosophy (PhD) - Computer Science (Human-Computer Interaction)

Graduating Fall 2024

- **Thesis:** *Bring-Your-Own Input: Context-Aware Multi-Modal Input for More Accessible Virtual Reality*

Master of Mathematics - Computer Science (Human-Computer Interaction)

Sept 2018 - Apr 2020

- Thesis-based program, resulting in an award-winning publication [1] in VR ergonomics.

### University of Calgary

Calgary, AB

Two Bachelor's Degrees: Computer Science, Business Technology Management

Sept 2011 - Jun 2017

- Honours first class (research + high GPA), and highest graduating GPA in business program.

## Experience

### Meta Reality Labs

New York, NY

Research Scientist Intern, Input Explorations (mentors: Bruno de Araujo, Jota Costa)

Sept 2022 - Jan 2023

- Designed and developed AR/VR interaction techniques utilizing eye tracking and EMG transformer models.
- Developed, organized, and led Unity input experiments to evaluate AR/VR eye tracking input accuracy.
- Analyzed experimental data using statistical tests like ANOVA and t-tests to reveal trends and overall effects.
- Created a dataset of gaze dynamics and eye-tracking accuracy for consumer VR hardware to aid productization.

### Microsoft Research

Redmond, WA (Remote)

Research Intern, Ability Team (mentors: Martez Mott, Sasa Junuzovic, Edward Cutrell)

Jun 2022 - Sept 2022

- Primary author and developer for a VR accessibility research experiment involving multimodal VR input and 3D input remapping, using WebXR and Javascript.

Research Intern, Ability Team (mentors: Martez Mott, Sasa Junuzovic, Edward Cutrell)

May 2021 - Aug 2021

- Primary author of an accessibility research publication [2] using qualitative methods to investigate the use of multi-device input configurations by people with mobility limitations.
- Coordinated cross-functional collaboration across Xbox and Accessibility teams to develop a qualitative research agenda.

### Autodesk Research

Toronto, ON

Research Intern, UI Research Group (mentors: Fraser Anderson, Tovi Grossman)

Jan 2020 - May 2020

- Primary author and sole Unity developer for a research paper on hybrid VR-desktop interfaces, resulting in a patent and conference publication [3].
- Second author of a conference publication implementing generative AI to create intentionally "ugly" designs.

## Sample Publications

Full list: [johannwentzel.ca/cv](https://johannwentzel.ca/cv)

[3] **Johann Wentzel**, Fraser Anderson, George Fitzmaurice, Tovi Grossman, Daniel Vogel. 2024. *SwitchSpace: Understanding Context-Aware Peeking Between VR and Desktop Interfaces*. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24). [doi.org/10.1145/3613904.3642358](https://doi.org/10.1145/3613904.3642358)

[2] **Johann Wentzel**, Sasa Junuzovic, James Devine, John Porter, Martez Mott. 2022. *Understanding How People with Limited Mobility Use Multi-Modal Input*. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '22). DOI: <https://doi.org/10.1145/3491102.3517458>

[1] **Johann Wentzel**, Greg d'Eon, and Daniel Vogel. 2020. *Improving Virtual Reality Ergonomics through Reach-Bounded Non-Linear Input Amplification*. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '20). DOI: <https://doi.org/10.1145/3313831.3376687>

\* **Best Paper Honourable Mention (top 5% of submitted papers)**

## Skills

**Programming Languages:** C#, Swift, Python, R, HTML, CSS, Javascript, Objective-C, C++, SwiftUI

**Dev tools:** Unity, Xcode, ARKit, RealityKit, Android Studio, Bootstrap, React, NumPy, jQuery, NodeJS, Git, OpenCV.

**Design tools:** Figma, Sketch, Balsamiq, Adobe Illustrator, Final Cut Pro

**Hobbies:** Home servers, game development for VR, AR, iOS. Classically trained in piano, clarinet, voice.