Johann Wentzel

Human-Computer Interaction Researcher • Virtual and Augmented Reality • Accessibility
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Education

PhD, Computer Science (Human-Computer Interaction) – University of Waterloo *Graduating Fall 2024*
Master of Mathematics, Computer Science – University of Waterloo (thesis) *2018 – 2020*
Bachelor of Science, Computer Science – University of Calgary (thesis) *2011 – 2017*
Bachelor of Commerce, Business Technology Management – University of Calgary *2011 – 2017*

Experience

Expressive Input & Interaction Lab, University of Waterloo **Waterloo, ON**
Graduate Researcher and Teaching Assistant *Sept 2018 – Present*
- Published and presented multiple qualitative and quantitative research papers in human-computer interaction.
- Created technical prototypes using tech stacks like Unity, SteamVR, GPT-4, OpenXR, MediaPipe, Web, and iOS.
- Established strategic partnerships with local accessibility foundations to design and implement VR accessibility research.

Meta Reality Labs **New York, NY**
Research Scientist Intern, Input Explorations *Sept 2022 – Jan 2023*
- Designed and developed AR and VR interaction techniques utilizing eye tracking and EMG transformer models.
- Created, organized, and facilitated 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 *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 *May 2021 – Aug 2021*
- Wrote and published an accessibility paper **[2]** using qualitative methods to investigate the use of multi-device input configurations by people with mobility limitations. (more info)
- Coordinated cross-functional collaboration across Xbox and Accessibility teams to develop a qualitative research agenda.

Autodesk Research **Toronto, ON**
Research Intern, UI Research Group *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]**. (more info)
- Second author of a conference publication implementing generative AI to create intentionally "ugly" designs. (more info)

Sample Publications

Full list: 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). (more info)

[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). (more info)

[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). (more info)
*** Best Paper Honourable Mention (top 5% of submitted papers)**

Skills

Research: Controlled experiments, user studies, UX research, surveys, interviews, statistical data analysis
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