Brittney Hartle, PhD

brittneyhartle.com/projects in/brittney-hartle Toronto, ON

PROFESSIONAL SUMMARY

Mixed method researcher with over 10 years of experience leading end-to-end studies that inform product development for immersive technologies (simulators, AR/VR). Expert in a wide range of qualitative (interviews and usability testing) and quantitative (survey, A/B testing, advanced analytics) methods. Proven success managing multiple research initiatives within large organizations in VR product development and aviation industries. Experience collaborating with cross-functional partners in agile environments across Product, UX, Design, and Engineering teams to integrate research into development. Proficient with industry-standard tools such as Qualtrics, with additional experience analyzing data using R, Python, and SQL. Recognized for strong communication, project management, and the ability to synthesize diverse data sources into compelling reports and presentations. Motivated to learn and apply the latest research techniques, and thrive in ambiguous, fast-paced environments. Excited to contribute my research expertise and collaborative mindset to your team.

RESEARCH EXPERIENCE

Confidential Industry Partner — Aug. 2024 – Present

UX Researcher (Postdoctoral) — *Toronto, ON*

- Led an end-to-end research initiative investigating optical factors in virtual reality (VR), designing and conducting five confidential A/B tests and in-depth interviews that directly improved user interaction and comfort in VR product design
- Partnered with a cross-functional team of seven researchers and managers at collaborating organization to plan, design, and execute custom studies, delivering strategic insights that shaped product development
- Produced compelling research deliverables, including detailed reports and presentations (Word, PowerPoint, Markdown) to communicate findings and recommendations into actionable insights for diverse stakeholders across the organization
- Designed and implemented A/B studies integrating quantitative performance metrics using Blender, Unity3D, and R, ensuring robust analysis to support data-driven design enhancements to user perception and comfort
- Used established simulator sickness questionnaires and designed custom intercept surveys to collect qualitative survey data regarding user comfort

Waterloo Institute for Sustainable Aeronautics — Sept. 2022 – Sept. 2024

HCI Researcher (Postdoctoral) — *Toronto, ON*

- Lead end-to-end research and design of two high-impact studies on flight simulator usability during aviation-relevant visual illusions, directly shaping Waterloo's pilot training strategies
- Designed and conducted A/B tests with 70 participants, uncovering key usability challenges and behavioral patterns in training
- Collected, analyzed, and synthesized qualitative and quantitative data from simulator recordings and survey responses (Qualtrics), using R to generate regression models that predicted pilot performance based on demographic characteristics and experience levels
- Leveraged an NLP algorithm and k-means clustering to identify key insights from semi-structured interview transcripts
- Transformed large-scale performance data into clear, interactive visual reports, modelled flight trajectories, and conducted in-depth one-on-one interviews with pilot trainees, delivering evidence-based recommendations to enhance training content

Meta Reality Labs — Dec. 2019 – March 2020

Research Intern — *Redmond, WA*

- Led a 4-month research project investigating the perceptibility of visual distortions in augmented reality hardware, delivering insights that directly informed prototype development
- Collaborated with a multidisciplinary team of engineers, optical scientists, and product managers to align research goals and seamlessly integrate findings into the product development cycle in a fast-paced, agile environment
- Effectively communicated research findings and actionable recommendations to stakeholders, technical teams, and industry partners through clear project reviews and presentations
- Designed and conducted an in-person usability study using Python, eye-tracking, and logs analysis to uncover gaze patterns and user behavior, translating data-driven insights into design improvements for the prototype

Defence Research & Development Canada — Oct. 2015 – Oct. 2018

HCI Research Associate — *Toronto, ON*

- Led a collaborative research project assessing binocular vision requirements in military aviation, delivering evidence-based recommendations that improved pilot performance through updated vision screening standards
- Conducted in-depth interviews with military pilots and flight engineers to uncover user needs and identify critical flight tasks to inform

study design
- Worked closely with a six-member cross-functional team of defence scientists to design and execute three regulated research projects, ensuring strict compliance with ethics and operating procedures required for military aircrew
- Designed and ran simulations, collected and analyzed quantitative data, and synthesized findings into clear presentations and reports
- Delivered actionable insights that directly shaped updated the vision screening for pilots in the Canadian Armed Forces, enhancing training and operational effectiveness

TECHNICAL & RESEARCH SKILLS

Quantitative & Qualitative Research: Mixed Methods Design, Usability Testing, A/B Testing, Lab Studies, Logs Analysis, Survey Design (Qualtrics, Microsoft Forms), Semi-structured Interviews, User Behavior Analysis, Human Factors

Statistical Analysis & Modelling: Multiple Linear Regression, Generalized Liner Models, Mixed Models, Logistic Regression, Predictive Modeling, NLP algorithms, LLM prompting, Bootstrapping, Decision Trees, K-Means Clustering, Descriptive Analytics

Stakeholder Engagement & Storytelling: Stakeholder Collaboration, Compelling Presentations (PowerPoint & Google Slides), Data Visualization (Power Bi & R), Report Writing, Insight Advocacy, Bibliographic Software (Zotero, Mendeley)

Technical Tools: Python, R, SQL, Matlab, Qualtrics, Microsoft Office Suite (Word, Excel, PowerPoint), Blender, Unity3D, GitHub

Collaboration & Communication: Cross-Functional Teamwork, Remote Research Tools, Clear & Compelling Storytelling, Fast-Paced, Agile Environments (Jira), Client & Stakeholder Engagement

EDUCATION

York University **Sept. 2016 – August 2022**

Ph.D. Degree, Psychology (Brain, Behavior & Cognitive Science) *Toronto, ON*

- Developed research questions investigating how users perceived and interact with objects in VR relative to natural viewing environments by managing and conducting in-person research over three studies
- Used Unity and Python to develop research studies in virtual reality head-mounted displays and used Blender to model virtual objects and 3D print matched physical models
- Data analysis using advanced statistical techniques, such as psychophysical modelling, signal processing, multiple linear regression, mixed models, logistic regression, Bayesian statistics, and bootstrapping using R
- Mentored 4 junior researchers (2018 to 2022), providing guidance on best practices, study design, and data analyses to complete their independent research projects

CERTIFICATIONS & AWARDS

- Over $160,000 CAD in research grants and scholarships
- Over eight publications in scientific journals (See https://www.brittneyhartle.com/publications)
- Over 15 presentations at international scientific conferences