

Brennan Jones

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Human-Computer Interaction (HCI) researcher working on technologies that bring people together. Building the future of extended reality (XR), telepresence, and remote collaboration. Trained and skilled as a computer scientist, developer, designer, researcher, and communicator. Blowing minds and warming hearts.

EDUCATION

PhD in Computer Science (HCI), University of Calgary, Canada (GPA: 4.00/4.00) **2017.4 – 2021.6**

Supervisory Committee: Dr. Anthony Tang (University of Toronto), Dr. Carman Neustaedter (Simon Fraser University), Dr. Ehud Sharlin, Dr. Wesley Willett; **Thesis:** Designing Remote Collaboration Technologies for Wilderness Search and Rescue

M.Sc. in Computer Science (HCI), University of Calgary, Canada (GPA: 3.85/4.00) **2014.9 – 2016.12**

Thesis Advisor: Dr. Anthony Tang; **Thesis:** Elevating Communication, Collaboration, and Shared Experiences between Peers in Mobile Video Communication using Drones

B.Sc. in Computer Science (with First-Class Honours), University of Calgary, Canada (GPA: 3.75/4.00) **2011.9 – 2014.4**

Concentration: Human-Computer Interaction; **Courses:** HCI, HRI, Computer Graphics, Software Engineering; **Extracurricular Activities:** RezNet, UCalgaryCares; **Honours Thesis:** Improving Collaboration in Online Group Art Therapy

WORK EXPERIENCE

Research Intern, Microsoft Research (MSR) Redmond **2021.6 – 2021.9**

Working with the MSR Extended Perception, Interaction & Cognition (EPIC) research group, the MSR Socially Intelligent Meetings research group, and the MS Teams product group on research related to video conferencing and hybrid meetings.

Research Intern, Microsoft Research (MSR) Cambridge **2019.7 – 2019.9**

Built a research prototype titled “VROOM” (Virtual Robot Overlay for Online Meetings): a two-way XR mobile robotic telepresence technology probe. Conducted a **mixed-methods study** to understand how pairs of users adapt to different styles of remote collaboration and ‘belonging to a space’.

Visiting PhD Scholar, School of Interactive Arts + Technology (SIAT), Simon Fraser University **2017.4 – 2021.6**

Worked in collaboration with PhD co-supervisor and other colleagues on research related to telepresence, remote collaboration, and social computing.

Research Intern, Inria Saclay **2016.4 – 2016.9**

Built a prototype for a remote-collaboration platform for distributed workrooms with large wall-size displays, using motion-capture cameras, video communication, and telepresence robots.

Teaching Assistant, Dept. of Computer Science, University of Calgary **2015.9 – 2015.12**

Taught student labs and tutorials for CPSC 481 (Introduction to HCI); assisted students with their project work; taught UI/UX programming and development.

Researcher (HCI/CSCW), Interactions Lab (iLab), Dept. of Computer Science, University of Calgary **2012.11 – 2021.6**

Worked on research related to remote collaboration, robotics, and emergency response; designed, built, and evaluated research prototypes; published at top-tier venues (e.g., ACM CHI, CSCW).

SELECTED RESEARCH HIGHLIGHTS

VROOM: Virtual Robot Overlay for Online Meetings **2019.7 – 2021.4**

Lead Researcher, Designer, Developer; **Mixed-Methods Research, Interviews, XR, Telepresence, HoloLens, WMR, Unity 3D (C#)**



A two-way XR robotic telepresence technology probe, and subsequent **mixed-methods study** to understand its use by local and remote users working together on dynamic collaborative activities. By attaching a 360° camera to a telepresence robot, we provide the remote user with **enhanced vision** of the local environment, through which they can freely explore in VR. We also superimpose an avatar of the remote user into the local space over the robot, which the local user can see in AR through a HoloLens, allowing the remote user to be more expressive in the local environment.

Video Demo: <https://youtu.be/9ZZ-YdUU01w> | **Project Page:** <https://aka.ms/vroom-mrp>

Publication: Jones, B., Zhang, Y., Wong, P.N.Y., and Rintel, S. (2021). Belonging There: VROOM-ing into the Uncanny Valley of XR Telepresence. In *PACMHCI*, 5 (CSCW1), ACM.

XRmas: Extended Reality Multi-Agency Spaces for Remote Family Meetings during Christmas

2020.11 – Now

Researcher, Designer, Developer; **XR**, **Telepresence**, **HoloLens**, **Oculus Quest**, **Unity 3D (C#)**



A two-way **XR** telepresence system that allows a remote family member to visit their loved one's home during Christmas. XRmas enables a remote (**VR**) user to visit the living room of a local (**HoloLens** and smartphone **AR**) user and interact in a virtual augmented space together in a Christmas context. The remote user can spawn virtual gifts, decorate the room with virtual ornaments, and light up the Christmas tree in the local user's room via **IoT**.

Video Demo: <https://youtu.be/vsGzLRctESA> | **Project Page:** <https://tinyurl.com/xrmas-proj>

Publication: Zhang, Y., Jones, B., Rintel, S., and Neustaedter, C. (2021). XRmas: Extended Reality Multi-Agency Spaces for a Magical Remote Christmas. To appear in *Companion of CSCW 2021*, ACM.

Designing Remote Collaboration Technologies for Wilderness Search and Rescue (WSAR)

2017.4 – 2021.6

Lead Researcher, Lead Designer, Lead Developer; **Qualitative Research**, **Interviews**, **Contextual Inquiry**, **WebGL**, **Unity 3D (C#)**



For my PhD thesis, I focused on advancing understanding of how to design technologies to better support **remote collaboration** between WSAR responders. I conducted **interviews** with WSAR workers and an **observation study** of WSAR training to better understand WSAR workers' needs and challenges. Following this, I **designed**, **prototyped**, and **evaluated** an interface that aims to enhance WSAR commanders' awareness of the search operation through body-camera footage.

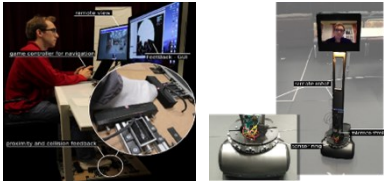
Project Page: <https://tinyurl.com/wsar-collab>

Publication: Jones, B., Tang, A., and Neustaedter, C. (2020). Remote Communication in Wilderness Search and Rescue: Implications for the Design of Emergency Distributed-Collaboration Tools for Network-Sparse Environments. In *PACMHCI, 4 (GROUP)*, ACM.

FeetBack: Augmenting Robotic Telepresence with Haptic Feedback on the Feet

2017.11 – 2020.10

Researcher; **Quantitative Research**, **Telepresence**, **Sensor Technologies**, **Robotics**, **Hardware Design and Prototyping**



A foot-based **haptic-feedback** system for use when operating a telepresence robot. Users place their feet inside a platform that provides awareness of nearby obstacles through vibration and collision feedback on their feet. The purpose is to enhance **spatial presence** and **awareness** of obstacles when operating a telepresence robot in a crowded environment.

Project Page: <https://tinyurl.com/feetbacktp>

Publication: Jones, B., Maiero, J., Mogharrab, A., Aguilar, I.A., Adhikari, A., Riecke, B.E., Kruijff, E., Neustaedter, C., and Lindeman, R.W. (2020). FeetBack: Augmenting Robotic Telepresence with Haptic Feedback on the Feet. In *Proc. ICMI '20*, ACM.

Drone-Supported Video Conferencing

2015.1 – 2016.12

Lead Researcher, Lead Designer, Lead Developer; **Qualitative Research**, **Telepresence**, **Video Communication**, **Drones**, **Robotics**, **iOS**, **Mobile Development (Objective-C, Swift, C)**, **Web App Development (JavaScript, HTML5, CSS)**



This project studied the use of semi-autonomous drones for video conferencing, where an outdoor user (using a smartphone) is connected to a desktop user (e.g., who is at home or in an office) who can explore the environment from the drone's perspective. The purpose is to support serious collaborative activities where an outdoor user could benefit from a remote expert's assistance (e.g., worksite inspection, search and rescue), as well as outdoor leisurely activities (e.g., hiking) between a local user and a remote friend or family member.

Video Demo: <https://youtu.be/CejNLVO53lc> | **Project Page:** <https://tinyurl.com/dronevc>

Publication: Jones, B., Dillman, K., Tang, R., Tang, A., Sharlin, E., Oehlberg, L., Neustaedter, C., and Bateman, S. (2016). Elevating Communication, Collaboration, and Shared Experiences in Mobile Video through Drones. In *Proc. DIS 2016*, ACM.

SELECTED SKILLS AND QUALIFICATIONS

Human-Computer Interaction:

User Experience (UX) Research, UX Design, Prototyping, Lab Experiments, Field Studies, Observation Studies, Interview Studies, Ethnographic Methods, Qualitative Methods, Quantitative Methods, Mixed Methods

Programming languages, tools, platforms, and environments:

Unity, JavaScript, Node.js, C#, .NET, Visual Studio, Objective-C, Swift, iOS, PHP, MySQL, HTML, HTML5, CSS, Java, C, C++, Python

Technologies:

Extended Reality (XR/AR/VR/MR) Development (HoloLens, Windows Mixed Reality VR, Oculus Quest), WebRTC Development, Robotics Programming, Hardware Prototyping, 3D Printing, Physical Prototyping, Arduino, VICON Motion Capture, Microsoft Kinect