Janet G. Johnson

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Education

University of California, San Diego   *La Jolla, CA, USA*
PhD in Computer Science / Human Computer Interaction, 3.82/4   *Sept. 2018 - PRESENT*

University of California, San Diego   *La Jolla, CA, USA*
Master's in Computer Science and Engineering, 3.72/4   *Sept. 2016 - Jun. 2018*

Manipal Institute of Technology, Manipal University   *Manipal, India*
Bachelor of Engineering in Computer Science and Engineering, 8.79/10   *Jul. 2010 - Jun. 2014*

Research Experience

Human-centered eXtended Intelligence Lab & The Design Lab, UC San Diego   *La Jolla, CA, USA*
Researcher, PhD Candidate (Dissertation Focus: Mixed Reality Mediated Collaboration)   *Apr. 2017 - PRESENT*

Dissertation Work
- Developing a communication and cognition first model for Mixed Reality mediated collaboration.
- Designed and evaluated interaction techniques that exploit XR's spatial affordances to better support remote guidance.
- Evaluated XR-mediated real-time guidance for trauma surgery against current telementoring practices through cadaver studies.
- Designed an XR telementoring environment for open surgery (collaboration with the Naval Medical Center at San Diego).
- Co-designed and developed HoloCPR, a Mixed Reality application that provides real-time resuscitation (CPR) support for novices.

Other Projects
- Contributed to the design of a mixed fidelity prototyping and authoring tool in Mixed Reality that exploits situated sketching.
- Conducted preliminary research towards creating a context aware voice-based digital assistant for older adults.
- Uncovered needs and created a mobile intervention to improve patient-centered communication in primary care.
- Conducted longitudinal research to understand latent needs and develop a framework for family-centered interventions in the ICU.
- Employed design ethnography to understand the communication and interaction patterns among different stakeholders in an ICU.

XR Safety Initiative   *Remote*
Medical XR Research Advisor (2022), Research Collaborator (2021-2022)   *June. 2021 - PRESENT*

- Leading a multi-team research effort towards creating guidelines for safe and ethical XR applications in healthcare.
- Conducted research towards understanding current global practices towards creating XR applications in healthcare.

ReCODE Health, UC San Diego   *La Jolla, CA, USA*
Graduate Collaboratory Fellow (Research)   *Oct. 2016 - Jan. 2018*

- Conducted research towards understanding the trends of digital health research based on IRB forum posts.
- Responsible for user research and evaluation for the CORE platform.
- Contributed to the front-end development of a research library and forum for health researchers.

School of Medical Science and Technology, Indian Institute of Technology   *Kharagpur (IIT-KGP), India*
Research Intern   *Jun. 2013 - Jul. 2013*

- Segmented Magnetic Resonance Images (MRI) to enable brain tumor detection and isolation.
- Employed rough set filtering, edge detection and unsupervised clustering.
- Successfully isolated tumor(s) in MR Images with 78% accuracy.

Professional Experience

Facebook Reality Labs, Facebook Inc   *Seattle, WA, USA*
UX RESEARCH INTERN   *Jun. 2020 - Sept. 2020*
- Conducted exploratory and generative research to inform future product strategy with a focus on spatial and audio capabilities for Augmented Reality glasses.

Facebook AR/VR, Facebook UK Limited   *London, UK*
UX RESEARCH INTERN   *Jun. 2019 - Sept. 2019*
- Conducted qualitative UX research on AR authoring and the Spark AR ecosystem to inform future product and research directions.

PricewaterhouseCoopers & UC San Diego   *La Jolla, CA, USA*
UX RESEARCH & DESIGN INTERN   *Jun. 2017 - Sept. 2017*
- Designed a collaborative Mixed Reality application to visualize and interact with multi-dimensional population health data.
- Created Unity prototypes to evaluate various design choices and interaction methods that shaped the final application.

Microsoft India (R&D) Pvt. Ltd.   *Hyderabad, India*
SOFTWARE ENGINEER   *Jul. 2014 - Jul. 2016*
- Designed an interface and developed angular components for an e-commerce site for Microsoft partners.
- Created a tool to identify stressed devices on the Microsoft Corporate Network, reducing the time from 6-8 hrs to approx. 6 minutes.
- Helped formulate business-unit level budget plan, created vendor contracts, and tracked and managed data-center projects as part of a program management stint.

Juniper Networks India Pvt. Ltd.   *Bangalore, India*
ENGINEERING INTERN   *Jan. 2014 - Jun. 2014*
- Designed a framework to enhance the debugging capabilities of EX-Series Platform Forwarding Engine.
- Made additions to JUNOS to pull relevant information from the Routing Engine, PFE and chipset of the switch.
- Reduced time to obtain the above-mentioned information from 30 minutes and 18 seconds to 12.7 seconds.

Publications

- **Janet G. Johnson**, Tommy Sharkey, Iramuali Cynthia Butarbutar, Danica Xiong, Ruijie Huang, Lauren Sy, and Nadir Weibel. "UnMapped: Leveraging Experts' Situated Experiences to Ease Remote Guidance in Collaborative Mixed Reality", To Appear in Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems.

- M.D. Tadlock, E.J. Olson, D. Gasques, R. Champagne, M.J. Krzyzaniak, S.A. Belverud, V. Ravindra, J. Kerns, P. M Choi, J. Deveraux, **J. Johnson**, T. Sharkey, M. Yip, N. Weibel, K. Davis. "Mixed reality surgical mentoring of combat casualty care related procedures in a perfused cadaver model: Initial results of a randomized feasibility study", In Surgery 2022.

- **Janet G. Johnson**, Danilo Gasques, Tommy Sharkey, Evan Schmitz, and Nadir Weibel. "Do You Really Need to Know Where "That" Is? Enhancing Support for Referencing in Collaborative Mixed Reality Environments", In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems.

- Danilo Gasques, **Janet G Johnson**, Tommy Sharkey, Yuanyuan Feng, Ru Wang, Zhuoqun Robin Xu, Enrique Zavala, Yifei Zhang, Wanze Xie, Xinming Zhang, Konrad Davis, Michael Yip, and Nadir Weibel. "ARTEMIS: A Collaborative Mixed-Reality System for Immersive Surgical Telementoring", In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems.

- Chen Chen, **Janet G Johnson**, Kemeberly Charles, Alice Lee, Ella T. Lifset, Michael Hogarth, Alison A. Moore, Emilia Farcas, and Nadir Weibel. "Understanding Barriers and Design Opportunities to Improve Healthcare and QOL for Older Adults through Voice Assistants", In Proceedings of ASSETS 2021, International ACM SIGACCESS Conference on Computers and Accessibility.

- W. Xie, Y. Liang, **J. Johnson**, A. Mower, S. Burns, C. Chelini, P. D'Alessandro, N. Weibel, and J.P. Schulze. "Interactive Multi-User 3D Visual Analytics in Augmented Reality", In Proceedings of IS&T International Symposium on Electronic Imaging 2020.

- Nadir Weibel, Danilo Gasques Rodrigues, **Janet G. Johnson**, Thomas Sharkey, Zhuoqun Xu, Xinming Zhang, Michael Yip, and Konrad Davis. "ARTEMIS: Mixed-Reality Environment for Immersive Surgical Telementoring", In Proceedings of the 2020 CHI Conference Extended Abstracts on Human Factors in Computing Systems.

- **Janet G. Johnson**, Khalil Mrini, Michael Hogarth, Alison Moore, Ndapa Nakashole, Nadir Weibel, and Emilia Farcas. "Voice-Based Conversational Agents for Older Adults", Position Paper at Conversational Agents for Health and Wellbeing, CHI 2020.

- K.L. Davis, D. Gasques, Y.Zhang, W. Xie, **J. Johnson**, Y. Feng, Z. Xu, J. Riback, T. Sharkey, M. Yip, N. Weibel. "ARTEMIS, Augmented Reality Technology to Enable reMote Integrated Surgery: A Review of Technical Consideration and Study Design", 2019 Military Health System Research Symposium (MHSRS 2019), Orlando Florida, August 2019.

- **Janet G. Johnson**, Evan Schmitz, Venktesh Ramnath, and Nadir Weibel. "Nurture-Empower-Support: A Human-Centered Approach to Understand and Support ICU Families", In Proceedings of The 13th EAI International Conference on Pervasive Computing Technologies for Healthcare, pp. 119-128. ACM, 2019.

- Thomas Sharkey, **Janet G. Johnson**, Danilo Gasques, and Nadir Weibel. "I Want to Be a Surgeon! Role Playing for Remote Surgery in Mixed Reality", In Proceedings of WISH 2019, Workshop on Interactive System for Healthcare, CHI 2019.

- Danilo Gasques Rodrigues, **Janet G. Johnson**, Thomas Sharkey, and Nadir Weibel. "PintAR: Sketching Spatial Experiences in Augmented Reality", In the Designing Interactive Systems Conference 2019 Companion, pp. 17-20. ACM, 2019.

- **Janet G. Johnson**, Evan Schmitz, Venktesh Ramnath, and Nadir Weibel. "Designing Family-Centered Aids for the ICU", In Proceedings of the 2019 CHI Conference Extended Abstracts on Human Factors in Computing Systems.

- Danilo Gasques Rodrigues, **Janet G. Johnson**, Thomas Sharkey, and Nadir Weibel. "What You Sketch Is What You Get: Quick and Easy Augmented Reality Prototyping with PintAR", In Proceedings of the 2019 CHI Conference Extended Abstracts on Human Factors in Computing Systems.

- **Janet G. Johnson**, Danilo Gasques Rodrigues, Madhuri Gubbala, and Nadir Weibel. "HoloCPR: Designing and Evaluating a Mixed Reality Interface for Time-Critical Emergencies", In Proceedings of the 12th EAI International Conference on Pervasive Computing Technologies for Healthcare, pp. 67-76. ACM, 2018.

- Rodrigues, Danilo Gasques, **Janet G. Johnson**, and Nadir Weibel. "Real-time guidance for cardiopulmonary resuscitation in Mixed Reality", Pervasive Health 2018 (demo)

Teaching Experience

Towards Human-Centered AI, UC San Diego
La Jolla, CA, India

TEACHING STAFF
2022

- Co-designing and creating the curriculum for a Masters course on designing human-centered AI.

CSE 118/218 - Ubiquitous Computing, UC San Diego
La Jolla, CA, India

TEACHING ASSISTANT
2017, 2018, & 2019

- This course explores ubiquitous computing through both paper readings and a quarter-long technical project
- Responsible for holding discussion sessions, some lectures, and mentoring teams on projects.

CSE 190/291 - Human-Computer Interaction for Health (HCI4H), UC San Diego
La Jolla, CA, India

TEACHING ASSISTANT
2019, 2021 & 2022

- This course explores the challenges of designing and introducing new interactive and sensing technology to healthcare.
- Responsible for mentoring students, grading, and logistics of the course.

Interaction Design Specialization, Coursera
La Jolla, CA, India

TEACHING STAFF
Sept. 2017 - Aug. 2019

- This specialization teaches fundamentals for designing, implementing, and evaluating user interfaces.
- Managed the logistics and course material for the eight courses that make up the specialization.

COGS 160 - Advanced Interaction Design, UC San Diego   *La Jolla, CA, India*

TEACHING ASSISTANT   *Apr. 2017 - Jun. 2017*

- This course introduces social computing, interaction techniques and information design in a bi-weekly studio format.
- Helped conduct classes, held office hours, and was responsible for the grading and logistics of the class.

Honors and Responsibilities

TALKS, DEMOS, AND PRESENTATIONS

2022	**Designing Collaborative Experiences in eXtended Reality**, Adobe HCI/Viz Research Seminar	*Remote Talk*
2022	**Research Methods in HCI**, The Design Lab Internship Lecture Series	*La Jolla, CA, USA*
2021	**Remote Collaboration in XR**, Filene's big.bright.minds.	*Irvine, CA, USA*
2019	**Introduction to Augmented Reality**, Women in STEM, San Diego Science & Engineering Fair	*San Diego, CA, USA*
2018	**Mixed Reality and HCI Research**, Harvey Mudd Research Open House	*Claremont, CA, USA*
2017	**Video Games to the Rescue!**, Fleet Science Center	*San Diego, CA, USA*

ACADEMIC SERVICE

2022	**Track Chair**, Medical XR and Immersive Healthcare, Metaverse Safety Week
2022	**Organizer**, Workshop on Empathic Computing at IEEE VR: Conference on Virtual Reality and 3D User Interfaces
2020	**Web Co-Chair**, ACM International Joint Conference on Pervasive and Ubiquitous Computing & International Symposium on Wearable Computers

ACADEMIC REVIEWS

2023	**Late Breaking Works (AC)**, CHI: Conference on Human Factors in Computing Systems
2023	**Papers**, CHI: Conference on Human Factors in Computing Systems
2022	**Papers**, CHI PLAY:Annual Symposium on Computer-Human Interaction in Play
2022	**Late Breaking Works**, CHI: Conference on Human Factors in Computing Systems
2022	**Papers**, CSCW: Conference on Computer Supported Cooperative Work and Social Computing
2022	**Papers**, IEEE VR:Conference on Virtual Reality and 3D User Interfaces
2022	**Papers**, MobileHCI: Conference on Mobile Human-Computer Interaction
2022	**Papers**, TEI:Conference on Tangible, Embedded and Embodied Interaction
2021	**Papers**, CHI: Conference on Human Factors in Computing Systems
2021	**Papers**, ISWC: International Symposium on Wearable Computers
2021	**Papers**, SUI:Symposium on Spatial User Interaction
2021	**Papers**, VRST:Symposium on Virtual Reality Software and Technology
2020	**Papers**, CHI: Conference on Human Factors in Computing Systems
2020	**Late Breaking Works**, CHI: Conference on Human Factors in Computing Systems
2018	**Late Breaking Works**, CHI: Conference on Human Factors in Computing Systems

LEADERSHIP & INSTITUTIONAL SERVICE

2019	**CSE Diversity, Equity, and Inclusion Committee Member (Current)**, UC San Diego, La Jolla, USA
2018	**Graduate Women in Computing Member (Current)**, UC San Diego, La Jolla, USA
2017	**MS Program Representative**, CSE, UC San Diego, La Jolla, USA
2014	**Organizing Committee Member & Host**, Microsoft's Build The Shield, Hyderabad, India
2013	**Treasurer**, AAINA Dramatics, Manipal University's official dramatics club, Manipal, India
2013	**Category head, Hospitality**, Revels, MIT Manipal's national cultural festival, Manipal, India
2013	**Management Committee Member**, Indian Society of Technical Education, Manipal, India
2012	**Category head, Hospitality**, Techtatva, MIT Manipal's national technical festival, Manipal, India
2012	**Sponsorship Head**, AAINA Dramatics, Manipal, India

2012   **Assistant Director**, AAINA Dramatics, Manipal, India

2011   **Set Designer**, AAINA Dramatics, Manipal, India

OUTREACH & VOLUNTEERING

2020   **California Wolf Center (Current)**, Julian, CA, USA

2012   **Volunteer Service Organization (VSO)**, Manipal, India

2008   **Dubai Cares**, Improving access to primary education in developing countries, Dubai, UAE