Danilo Gasques, M.S., Ph.D. Candidate

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WHO AM I?

I am Doctoral Candidate (Ph.D.) in Computer Science and Engineering with a depth in Human-Computer Interaction. My research focus is on improving remote / automated task-guidance through eXtended Reality (XR) technology. In my work, I employ mixed methods to better understand user goals, co-design with stakeholders, and evaluate and explain interventions. I also develop prototypes, tools, and systems using WebXR, Unity3D, and MRTK.

EDUCATION

University of California, San Diego | Ph.D. Computer Science and Engineering | *GPA 3.77*   Aug 2016 - Present
- 🏆 Intuitive Surgical Research Fellowship Recipient (2020-2022)

University of California, San Diego | Exchange Student in Computer Science | *GPA 4.0*   Aug 2012 – Aug 2013
- 🏆 Full Scholarship Recipient: Brazilian Scientific Mobility

Universidade Federal de Sao Carlos, Brazil | B.Sc. In Computer Engineering | *GPA 9.2/10*   Jan 2009 - Dec 2014
- 🏆 Highest GPA of class of 2014. Co-founded funded research group on Manufacturing Automation

RESEARCH & PROFESSIONAL EXPERIENCE

Graduate Researcher | UC San Diego   Aug 2016 to Present
- ☐ Dissertation Topic: Researching how users cope with misaligned guidance in Augmented Reality
- ☐ <u>Understanding how user-headset calibration fails</u>: Developed an optical see-through AR display simulator in VR to understand the impact of manual calibration approaches on alignment between virtual and physical objects
- ☐ <u>Surgical telementoring (ARTEMIS)</u>: Led the design, implementation, and evaluation of a hybrid (AR & VR) remote collaboration system for trauma surgery in collaboration with the Navy Hospital in San Diego. Presented at <u>CHI2021</u>.
- ☐ <u>Mixed-Fidelity Prototyping Tool in Augmented Reality</u>: Led the design and implementation of an easy-to-use, sketch-based prototyping tool for HoloLens.
- ☐ <u>Why don't I take my doctor seriously?</u> Studying the impact of avatar design on remote tele-consultation in AR
- ☐ <u>HoloCPR</u>: co-designed, developed, and evaluated a mixed reality system for real time resuscitation (CPR) guidance

Applied Research Intern | Intuitive Surgical   Jun 2019 - Sep 2019
- ☐ Designed and developed a hybrid cross-platform teleguidance system using a combination of ThreeJS, Socket.IO, and NodeJs for the web interface and Unity3D (C#, UWP) for the Augmented Reality (AR) interface (HoloLens).

Applied Research Intern | Intuitive Surgical   Jun 2018 - Sep 2018
- ☐ Implemented and evaluated tracking technologies for inside-out Augmented Reality (AR) headsets
- ☐ Designed and developed several augmented reality prototypes for HoloLens and Magic Leap

Graduate Researcher | School of Medicine, UC San Diego   Jun 2017 - Sep 2017
- ☐ Conducted field studies and user research to then prototype AR applications for the surgical domain.
- ☐ Developed a low-latency (~60 ms/30fps) video streaming solution in C++ to stream ultrasound to HoloLens

Software Development Specialist | Daitan Group   Jan 2014 - Jul 2016
- ☐ Developed and maintained a highly reliable VoIP conference system in C++
- ☐ Improved call success rate to 99.99% by improving platform stability and through optimizations

📑 SELECT PUBLICATIONS & PATENTS (See Google Scholar for a full list)

- ☐ **D. Gasques**, J. Johnson, T. Sharkey, Y. Feng, R. Wang, Z. Xu, E. Zavala, Y. Zhang, W. Xie, X. Zhang, K. Davis, M. Yip, and N. Weibel. (2021) "ARTEMIS: A Collaborative Mixed-Reality System for immersive Surgical Telementoring." In *CHI'21 Human Factors in Computing System*
- ☐ P. Suresh, **D. Gasques**, N. Weibel and E.A. (2020) "Enhanced ultrasound systems and methods". *U.S. Patent Application 16/643,505*
- ☐ **D. Gasques,** J. G., Johnson, T. Sharkey, N. Weibel (2019). "What you sketch is what you get: Quick and easy augmented reality prototyping with pintar". *In CHI'19 Conference on Human Factors in Computing Systems.*
- ☐ J. G. Johnson, **D. Gasques,** T. Sharkey, E. Schmitz, and N. Weibel (2021). "Do You Really Need to Know Where "That" Is? Enhancing Support for Referencing in Collaborative Mixed Reality Environments", In *CHI'21 Human Factors in Computing System*
- ☐ J. Johnson, **D. Gasques**, M. Gubbala, and N. Weibel (2018). "Holocpr: Designing and evaluating a mixed reality interface for time-critical emergencies." In *Pervasive Computing Technologies for Healthcare*