

# Dan Andersen

✉ andersed@purdue.edu 🏠 dan.andersen.name 📱 DanAndersen 📧 danielspencerandersen

## Education

---

### Purdue University

PHD STUDENT, COMPUTER SCIENCE; CURRENT GPA: 3.73/4.0

MASTER OF SCIENCE, COMPUTER SCIENCE

West Lafayette, IN

May 2014 - present (expected May 2020)

May 2014 - Dec 2016

### University of Utah

BACHELOR OF SCIENCE, COMPUTER SCIENCE

Salt Lake City, UT

Sep 2007 - May 2011

## Awards

---

2015 **National Science Foundation Graduate Research Fellowship**, 3 years of funding

## Journal Publications

---

- **D. Andersen**, M. E. Cabrera, E. Rojas-Muñoz, V. Popescu, G. Gonzalez, B. Mullis, S. Marley, B. Zarzaur, J. Wachs. "Augmented Reality Future Step Visualization for Robust Surgical Telementoring." *Simulation in Healthcare* (in press).
- E. Rojas-Muñoz, M. E. Cabrera, **D. Andersen**, V. Popescu, S. Marley, B. Mullis, B. Zarzaur, J. Wachs. "Surgical Telementoring Without Encumbrance: A Comparative Study of See-through Augmented Reality-based Approaches." *Annals of Surgery* (2018).
- **D. Andersen**, V. Popescu, M. E. Cabrera, A. Shanghavi, G. Gomez, S. Marley, B. Mullis, J. Wachs. "An Augmented Reality Based Approach for Surgical Telementoring in Austere Environments." *Military Medicine* 182 (2017).
- **D. Andersen**, V. Popescu, M. E. Cabrera, A. Shanghavi, G. Gomez, S. Marley, B. Mullis, J. Wachs. "Medical Telementoring Using an Augmented Reality Transparent Display." *Surgery* 159.6 (2016): 1646-1653.
- **D. Andersen**, V. Popescu, M. E. Cabrera, A. Shanghavi, G. Gomez, S. Marley, B. Mullis, J. Wachs. "Virtual Annotations of the Surgical Field Through an Augmented Reality Transparent Display." *The Visual Computer* (2015): 1-18.

## Conference Publications and Presentations

---

- **D. Andersen**, V. Popescu. "An AR-Guided System for Fast Image-Based Modeling of Indoor Scenes." *IEEE VR 2018* (poster), Reutlingen, Germany, March 2018.
- **D. Andersen**, C. Lin, V. Popescu, E. Rojas-Muñoz, M. E. Cabrera, B. Mullis, B. Zarzaur, S. Marley, J. Wachs. "Augmented Visual Instruction for Surgical Practice and Training." *VAR4Good 2018 - Virtual and Augmented Reality for Good* (workshop paper), Reutlingen, Germany, March 2018.
- **D. Andersen**, V. Popescu, C. Lin, M. E. Cabrera, A. Shanghavi, J. Wachs. "A Hand-Held, Self-Contained Simulated Transparent Display." In proceedings of *IEEE International Symposium on Mixed and Augmented Reality (ISMAR-Adjunct)* (2016): 96-101.
- **D. Andersen**, V. Popescu, M. E. Cabrera, A. Shanghavi, G. Gomez, S. Marley, B. Mullis, J. Wachs. "Avoiding Focus Shifts in Surgical Telementoring Using an Augmented Reality Transparent Display." *Medicine Meets Virtual Reality 22: NextMed/MMVR22* 220 (2016): 9.
- **D. Andersen**. "STAR: Using Augmented Reality Transparent Displays for Surgical Telementoring." *Eskenazi Health 22nd Annual Trauma and Surgical Critical Care Symposium*. Indianapolis, IN. 16 Oct 2015. Conference presentation.

## Experience

---

### Facebook (Oculus Research; Facebook Reality Labs)

RESEARCH INTERN

Redmond, WA; Pittsburgh, PA

May 2017 - Sep 2017; Jun 2018 - present

- Researched and prototyped augmented reality interactions in social contexts.
- Researching deep learning of view-dependent effects for captured environments in social VR contexts.

### NVIDIA

RESEARCH INTERN

Santa Clara, CA

May 2016 - Aug 2016

- Investigated and researched rendering improvements in gaze-tracking head-mounted virtual reality displays.
- Developed simulator application using Python and OpenGL shaders to implement and validate gaze-enhanced rendering techniques.

### Purdue University

GRADUATE RESEARCH ASSISTANT

West Lafayette, IN

May 2014 - present

#### Project: System for Telementoring with Augmented Reality (STAR)

#### Sponsor: Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA))

- Developed prototype augmented reality surgical telementoring system, using Microsoft HoloLens, to provide live expert surgical guidance directly into mentee surgeon's field of view.
- Researched and developed novel transparent display system, using off-the-shelf displays, face-trackers, and depth-sensors to create portable system that transforms a tablet screen into a virtual window from the user's perspective.