

Dan Andersen

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Education

Purdue University

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

West Lafayette, IN
May 2014 - present (expected May 2020)

MASTER OF SCIENCE, COMPUTER SCIENCE

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

Publications and Presentations

- **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. "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. "Avoiding Focus Shifts in Surgical Telementoring Using an Augmented Reality Transparent Display." *Medicine Meets Virtual Reality 22: NextMed/MMVR22* 220 (2016): 9.
- **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.

Experience

Facebook (Oculus Research)

RESEARCH INTERN

Redmond, WA
May 2017 - Sep 2017

- Researched and prototyped augmented reality interactions in social 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.

Other Projects

- Researched and developed novel assistive navigation system for the blind, using Google Project Tango tablet, OpenGL, and OpenAL to capture point clouds and convert them into 3D audio navigation cues.
- Created visualization of flight plan risk assessment with Cesium.js to asynchronously render 3D overlays on virtual globe.

Skills

General graphics, augmented/virtual reality, vision, 3D reconstruction, mobile development, backend Web development

Platforms Windows, Linux, Android, Unity, Microsoft HoloLens

Languages C#, Python, Java, C++, GLSL, JavaScript

Libraries OpenGL, OpenCV, three.js, Cesium.js