

# Dan Andersen

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## Education

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### 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

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

## Publications and Presentations

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- **D. Andersen**, V. Popescu, C. Lin, M. E. Cabrera, A. Shanghavi, J. Wachs. "A Hand-Held, Self-Contained Simulated Transparent Display." In proceedings of *ISMAR 2016*. In press.
- **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." (submitted)
- **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

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### 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 Android, OpenCV, and OpenGL, 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.

### Mersoft Corporation

SOFTWARE ENGINEER

Overland Park, KS  
Aug 2012 - Apr 2014

- Designed iOS/Android augmented reality app with Vuforia for local arts charity.
- Led team in designing group-based contact management system with mobile frontends and asynchronous messaging backend.

## Other Projects

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- 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.
- Integrated WebVR Oculus Rift support into online volume rendering platform for scientific visualization.

## Skills

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

**Platforms** Windows, Linux, Android, Unity

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

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