Opportunity and Significance
As we grow older, our visuospatial abilities tend to decline at a steady rate. However, those suffering from Alzheimer’s and Dementia experience a more rapid decline which affects their overall quality of life. By leveraging object detection software commonly used in vehicles, we can help improve patients’ depth perception skills and their overall quality of life.

Technical Approach, Accomplishments and Results
Experimented with various methods of object detection software (mainly YOLO and projects developed for Microsoft Visual Studio), aiming to use the Microsoft HoloLens to test the finished program.

Determined that the YOLO object detection software is not ideal due to the limited computing power of the HoloLens and other similar AR devices.

Focusing more on developing an object detection program using Microsoft Visual Studio due to better compatibility with current AR devices.

Next Steps for Development and Test
• Continue developing an object detection program based on available resources
• Apply program to the Microsoft HoloLens or similar augmented reality device
• Make the designed program provide visual indicators to assist the user

Technical Objectives
Research and create a program leveraging object detection software/algorithms to identify static objects in an environment.

Integrate created program into the Microsoft HoloLens or similar AR device.

Make program provide visual indicators to assist user in navigating through environment.

Related Work and State of Practice
• Completely new project at WSU
• Leverages most recent forms of object detection which are often used in autonomous vehicles

Example of basic object detection using YOLO (Image is of my sister and our cat)