


# Methods to Quantify Hologram Alignment Accuracy & Stability

The background of the slide features a complex, abstract geometric pattern. It consists of numerous thin, light gray lines that intersect to form a network of triangles and other polygons. Scattered throughout this network are small, solid black dots of varying sizes. Some of these dots are larger and serve as focal points where multiple lines converge. The overall effect is that of a technical or mathematical diagram, possibly representing a network or a complex structure. The pattern is more dense and intricate in the lower right quadrant of the slide.

Category: Software or  
Hardware Issues

# Problem this Research Would Address

---

- AR usability in manufacturing use cases is sometimes limited by how stable a hologram is with respect to the hardware it represents. This problem may be alleviated if we were able to quantify a delta between the hologram and its real-world counterpart.
- **PROBLEM:** Your AR hologram appears to the user to be inline with the hardware, but how can we prove how close it is with respect to that users view?

# Whose problem would be addressed?

- *Providers of enterprise AR platforms* would
  - Have a validation procedure/software for testing & comparing hologram stability and placement accuracy for different AR hardware and software
- *Enterprise quality* would
  - Have a method to evaluate accuracy of work completed with AR
- *Enterprise technicians* would
  - Have higher confidence in work performed with AR

# How would this research be conducted?

1. Conduct a survey to determine AR hardware and software to assess hologram stability on
2. Create software that can quantify hologram alignment based on a user's perception of a hologram with respect to real world reference points
3. Compare popular enterprise AR hardware/software hologram stability with created software
4. Report findings in a research document
5. Release hologram stability software for use and independent assessments

# Project Deliverables

- A report outlining the problem and opportunity space
- Software to be used by anyone as a “tool” for assessing hologram alignment & stability
- A comparison of hologram stability and placement with various popular enterprise AR hardware and software

# Benefits to AREA Members

- AREA members will be able to evaluate hologram stability and placement for different AR hardware and software
- Long term impacts of this research:
  - Develop a common AR hologram “test” to compare stability/accuracy/drift across various hardware/software