

# CAP 6110: Augmented Reality Engineering

## Homework 3

Due Sunday, February 28, 2021 by 11:59pm  
(10 points)

### Purpose

Learn how to design and implement an AR application with a situated visualization.

### Directions

1. Create a Unity 2019.4.17f1 (LTS) project and add Vuforia 9.6.4.
2. Create a new scene in the project and save it as “Homework 3” under “Assets” > “Scenes”.
3. **Create an AR application with at least two instances of situated visualization and at least one tracked object.** Acceptable types of tracked objects include multi-targets, cylinder targets, model targets, and object targets. Acceptable types of situated visualization include:
  - a. Annotations and Labeling. All annotations associated with a single tracked object count as one instance of situated visualization. Multiple annotations per tracked object are strongly encouraged.
  - b. X-Ray Visualization. All X-ray virtual objects associated with a single tracked object count as one instance of situated visualization.
  - c. Spatial Manipulation. All spatial manipulations associated with a single tracked object count as one instance of situated visualization.
  - d. Information Filtering. Intelligent filtering of any other type of situated visualization will count as one instance of situated visualization.
4. **Add at least one additional functional feature to your AR application.** Acceptable functional features include, but are not limited to interactions, physics, animations, and user interfaces.
5. **Create a screen recording or video with commentary demonstrating your assignment.** The video should be NO LONGER THAN 4 MINUTES, but should clearly demonstrate and explain the following:
  - a. Your AR application includes at least two instances of situated visualization and at least one tracked object.
  - b. Your AR application includes at least one additional functional feature.
6. **Upload your video to YouTube as a Public or Unlisted video.**
7. Clean up your Unity project by removing any unnecessary assets from the “Assets” folder.
8. **Create a zip file (.ZIP ONLY) that contains your entire Unity project folder,** including all the folders (e.g., “Assets”) and files (e.g., “Project.sln”). **Your zip file must be 500 MB OR LESS.**
9. Submit the zip file through Webcourses under “Assignments” > “Homework 3” and **provide a comment that includes the YouTube link to your video.**

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10. If you are interested in sharing your submission with other students, also provide a comment that states your video can be shared with others.

### Scoring

This assignment will be scored as indicated below. The maximum possible score is 10 points.

- ☐ Your AR application includes at least two instances of situated visualization, and your YouTube video demonstrates each instance. **+3 points per instance (6 points maximum)**
- ☐ Your AR application includes at least one tracked object used to create your situated visualizations and your YouTube video demonstrates each object. **+2 points**
- ☐ Your AR application includes at least one additional functional feature that is interesting, and your YouTube video demonstrates it. **+1 point**
- ☐ Your AR application is aesthetically high quality, and your YouTube video demonstrates it. **+1 point**

### Deductions

This assignment will be deducted as indicated below. The minimum possible score is 0 points.

- ☐ Your submission is late. **-1 point**
- ☐ Your submission is more than one week late. **-5 points**
- ☐ Your submission is more than two weeks late. **-10 points**
- ☐ Your submission does not include a YouTube link to your video. **-2 points**
- ☐ Your video is longer than 4 minutes. **-2 points and -2 points per 30 seconds over**
- ☐ Your submission is more than 500 MB. **-1 point and -1 point per 50 MB over**
- ☐ Your submission is not a .ZIP file. **-2 points**
- ☐ Your submission does not contain your entire Unity project folder. **-5 points**
- ☐ Your submission is not a Unity 2019.4.17f1 (LTS) project. **-5 points**
- ☐ Your assignment is not saved as “Homework 3” under “Assets” > “Scenes”. **-2 points**

### Academic Integrity

See the course syllabus for course policies regarding academic integrity.

## **CAP 6110: Augmented Reality Engineering**

**These descriptions and deadlines are subject to change at the discretion of the instructor.**