CS11: 3D Scanning of Large Spaces

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Upcoming class assignments :

- **Project Evaluation Presentation :** Our code freeze assignment has been changed into a general overall presentation of our project. We are expected to hold a 30 minute presentation describing how to download, install and utilize our project. Below are the requirements :
    - **Build**: What tools, programs, and hardware are necessary to build and run your project? Teams should demonstrate a build of their project if applicable and provide a list of the tools, programs, and hardware and their locations if relevant. The steps required should be ordered and explained in a written and verbal form.
    - **Functional diagram**: The major functional blocks should be presented along with a diagram of how they interact. Further diagramming of the functionality of those blocks should be provided if critical or interesting. The format of the exercise makes it difficult to evaluate code, but this time can be used to explain particularly interesting code blocks.
    - **Demo**: Teams should endeavor to get any parts of their project into the hands of participants if practical. Programs or web page links or remote control of devices is strongly encouraged. Teams should demo as much function as possible. This is a primarily a review so teams should draw attention to remaining deficiencies and buggy operation.
    - **User Stories**: Address how User Stories from your “Milestone 2: Vision and Scope, User Stories, Iteration Plan" document were implemented.

- **Individual Expo Presentation :**
    - Three 60 second long videos directed towards : highly technical audience members; general public members; and lastly a 5th grader.

- **Issues with our MetaShape script :**
    - There are several issues we have run into generating textures on our meshes that we are trying to export. Up until recently we have been operating without a MetaShape license, however utilizing the MetaShape license provided by Scott Fairbanks had its own set of challenges. We have been attempting to use the

samples within the code provided by MetaShape however many of them are either non-functional or do not apply to our situation.
    - A solution we explored this week was creating tiled models instead of meshes; however, Metashape's tiled model formats are not compatible with Unreal Engine.
    - Potential solutions :
        - We could grab the individual photos themselves and set up a camera manually.
        - Experiment with the UV mapping and try to duplicate the options within the client as closely as possible (might be hard as they do not fully match).
        - There are several functions that could potentially generate textures without needing an aligned camera.

- **<u>Integrating our UI with the Unreal Engine Plugin :</u>**
    - Potential ideas for the step after the interface computes the fbx file with the metashape script:
        - Have another area that takes in fbx files. The metashape script will automatically grab that file after the plugin runs, and it will display the name for the file. Then, there will be a button that will call the Unreal script with that fbx file. This could be useful, as then the user could also be able to import other fbx files that they would want to place into Unreal
        - The button for this would call the script that import the fbx file into Unreal. We are currently unsure of a way to do this, as the script also has to be called in the actual engine itself right now.

- **<u>What there is left to do:</u>**
    - Allow the Metashape plugin to create a texture and embed them into the FBX file that is exported.
    - Connect the completed plugin with the user interface so that it works through the interface
    - Continue with working on the Unreal engine plugin to create more of a setup for the user, such as first person controls.
    - Integrate the Unreal Engine script with the user interface as well, so that the script is called from the interface.
    - Style the user interface, and modify the options to match what is required for the MetaShape plugin.
    - Scan some labs on campus and grab more data in general.
    - Discover solutions for larger scans(combining multiple point clouds)
    - Reorganize the github, and find solutions to importing necessary modules
        - Allow almost any user to begin working with the software after installing metashape and unreal.

- Create a video that demonstrates the power of our software.