Portfolio of Deming Zhu

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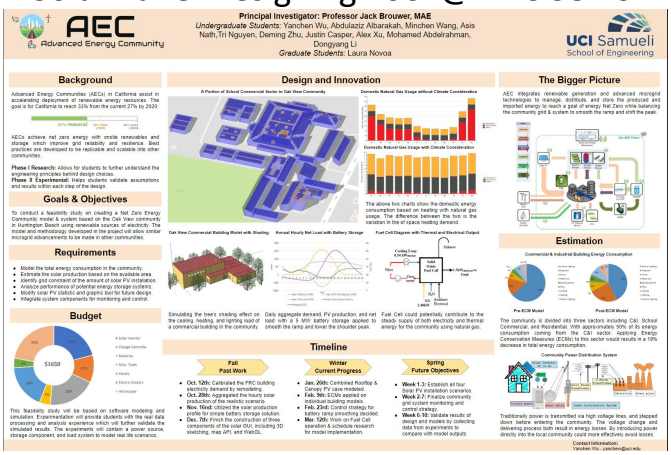

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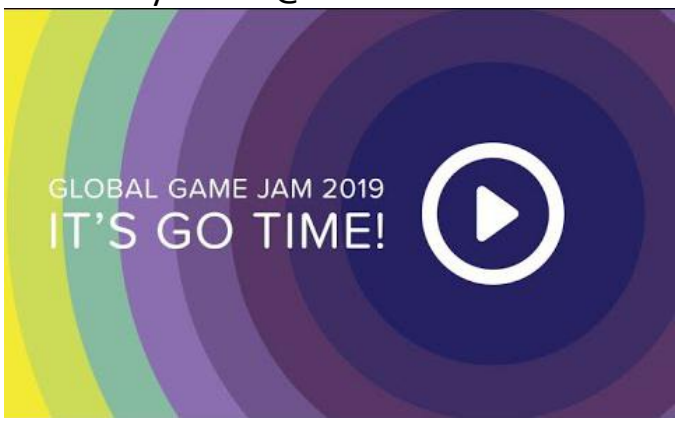


4:Frontline Squad (Personal Project)

Solar Panel Designing Tool @ AEC Senior Design 2018

Time spent: 3 quarters
Description: Advanced Energy Communities (AECs) in California assist in accelerating the deployment of renewable energy resources. AECs achieve net-zero energy with onsite renewables and storage which improve grid reliability and resilience. Best practices are developed to be replicable and scalable into other communities.

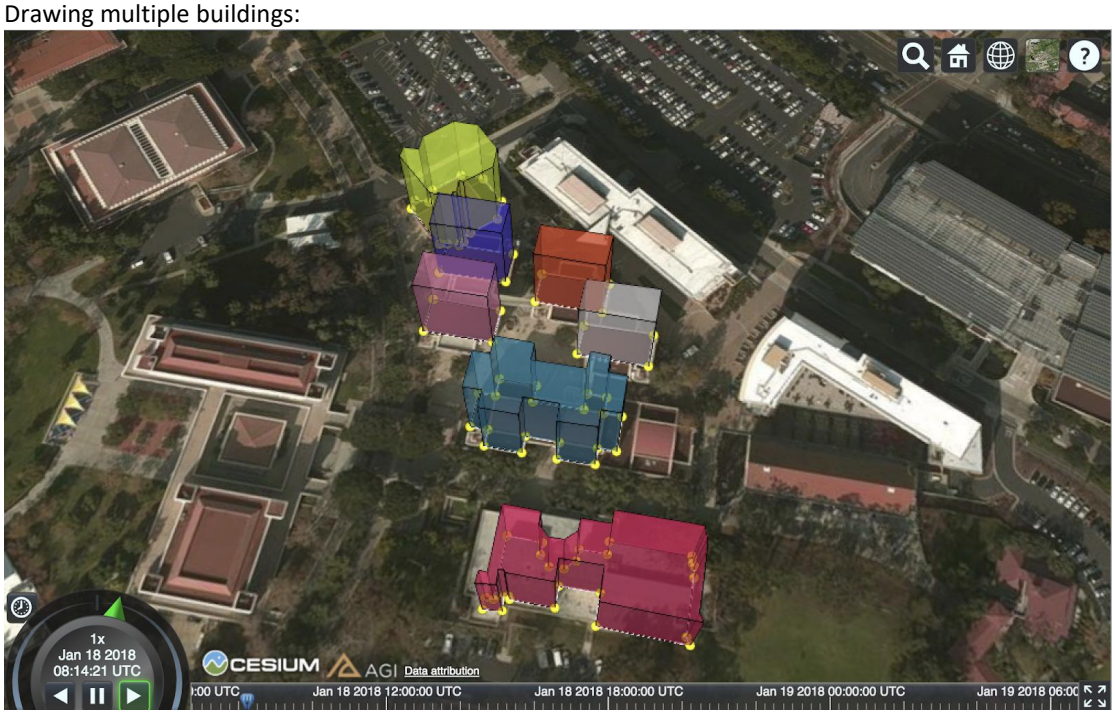
To achieve the goal, onsite renewables and storage are required in large quantities. This also requires tools that can assist in the designing process. Most of the web-based solar panel designers by the time were made for planning on a single building and therefore failed to perform well in designing for larger areas.

The design solar panel we develop is capable of generating solar panels for groups of buildings. Users would point out the edge of each building and then choose the layout of the rooftop. The detailed workflow will be provided in the screenshot section.

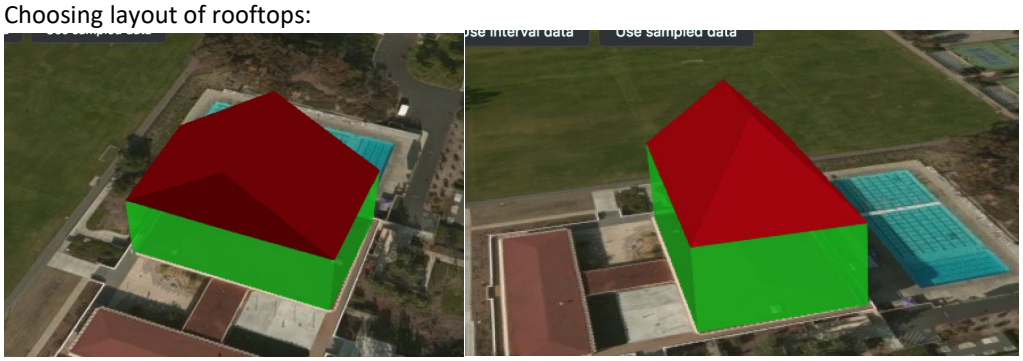
Screenshots:
Drawing the baseline of a building:

Double click to generate a building based on given baseline:

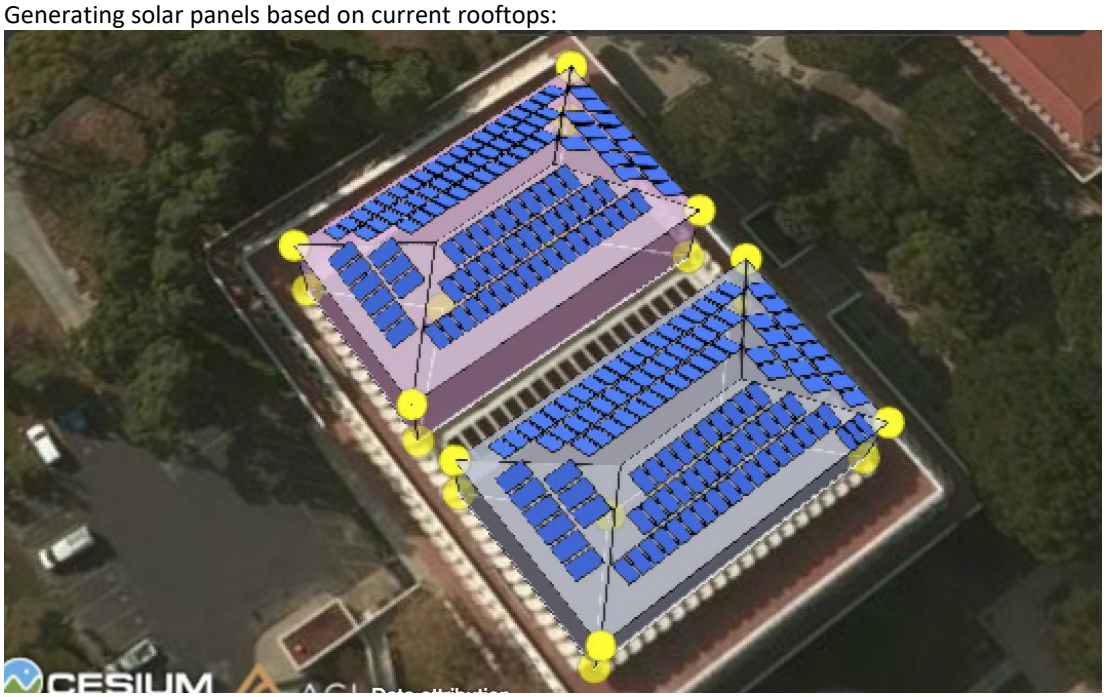
Drawing multiple buildings:



Choosing layout of rooftops:



Generating solar panels based on current rooftops:



Voices @ Global Game Jam 2018

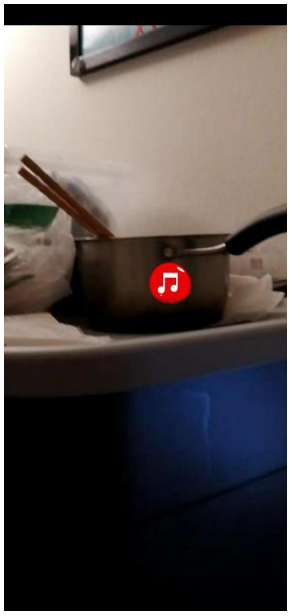
Time spent: 2 days

Description:

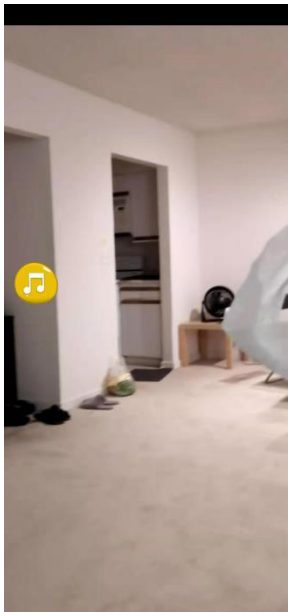
Voices is an AR-based mobile game. Players need to find musical notes in the real-world environment around the user. The mobile device uses a camera to acquire the surroundings and musical notes would be generated in a certain direction. Once the player collected enough musical notes (4 in total), the player needs to put them in the right sequence to acquire the entire piece of music.

Screenshots:

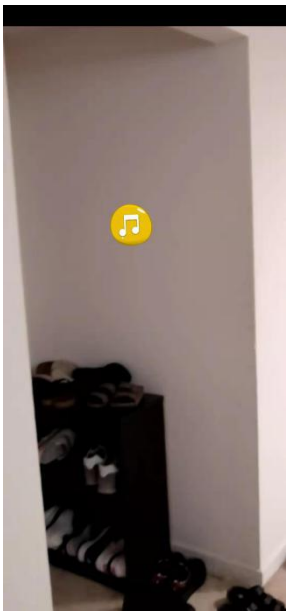
Found a musical note:



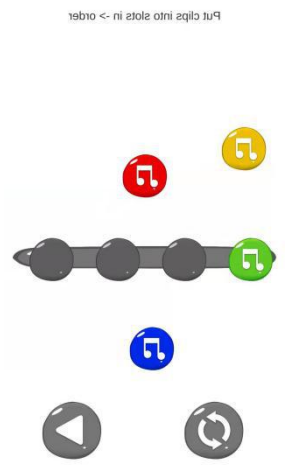
Another note near the door:



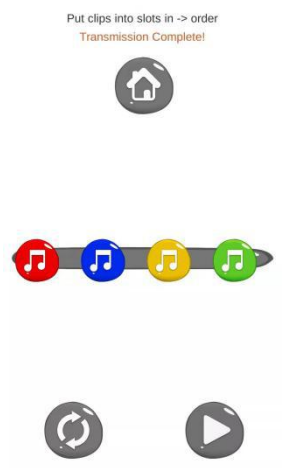
A closer view:



Rearranging notes after they are found:



Success!:



The Way Home @ Global Game Jam 2019

Time spent: 2 days

Description:

The Way Home is a 2D platformer game about the journey of a robot to find its way back home. Despite the fact that this game is similar to many platformer games, we integrated 2d physics as part of the gameplay. Players must make use of the random items in the scenes to get through the level. Sometimes the character needs to run into a pile of trash to clear a new path or players many need to stack up many boxes to build a ladder to reach higher locations.

The art design was based on a cyberpunk setting and the majority of art assets were purchased online. Perfect integration of 3D background and 2D character was what we were expecting to have, but it was not as good as intended due to lack of time.

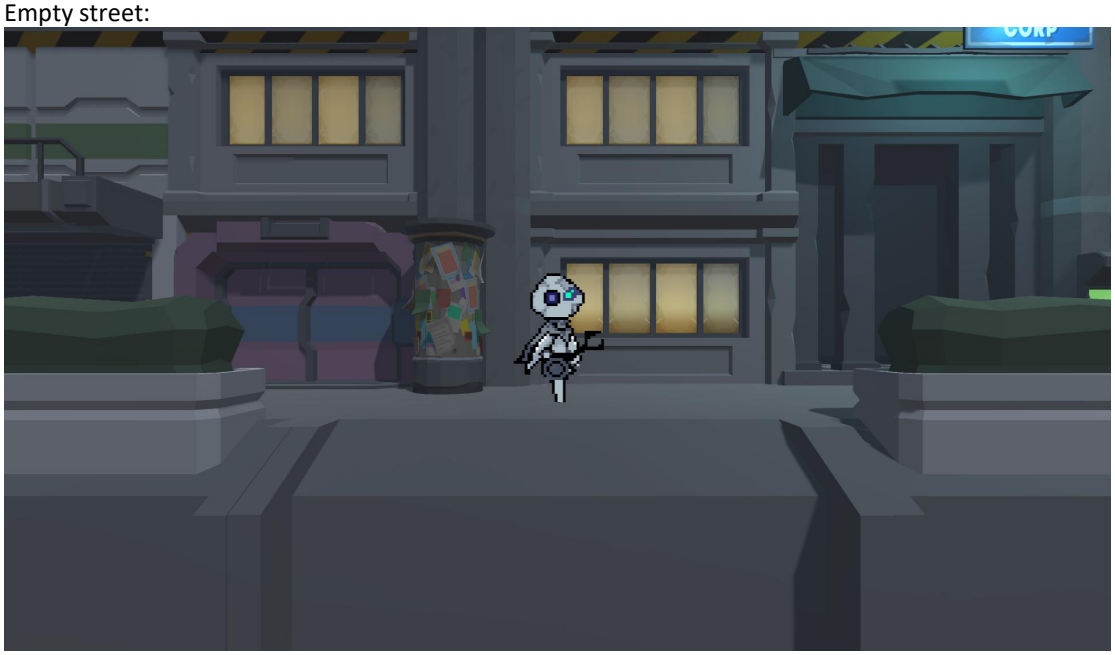
Download link

https://ggj.s3.amazonaws.com/games/2019/01/253938/exec/-Jkyk/The_way_home.zip

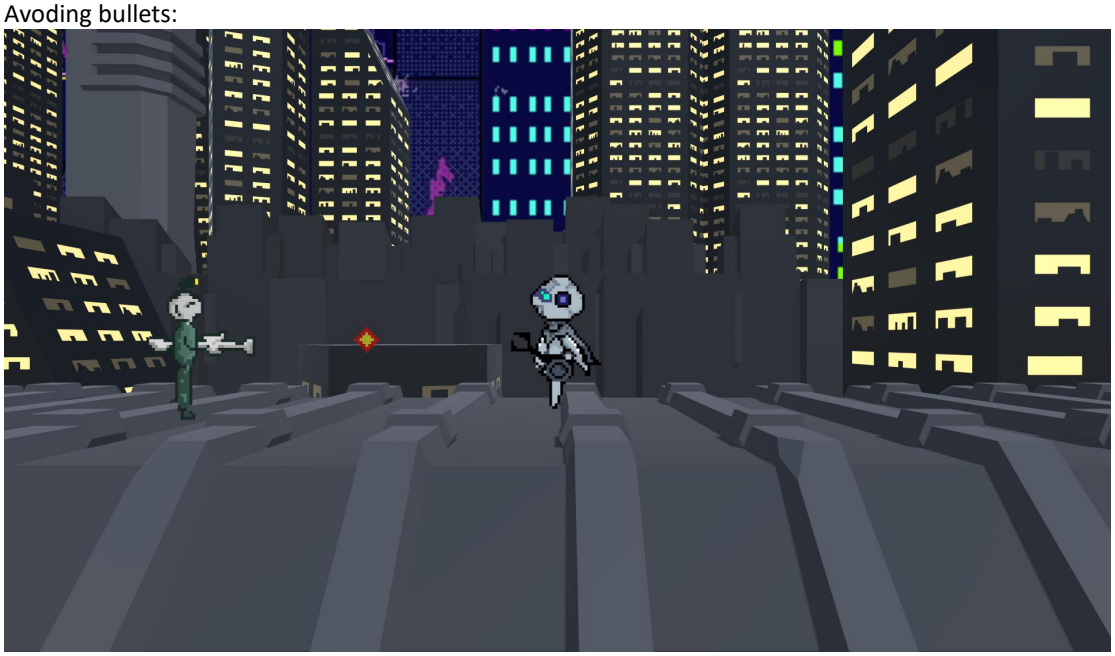
Screenshots:

Beginning of the first level:

Empty street:



Avoding bullets:



Cyberpunk city:

Frontline Squad (Personal Project)

Time spent: 10 months

Description:

Frontline Squad is a world war 2 based RTS/FPS hybrid game. Players can control various types of vehicles and weapons in the first-person mode as well as playing as a commander in god view. The game provides immersive world war 2 with realistic game mechanics, including real ballistic simulation and armor systems. The game is still under development due to its huge need for art assets but most of its game logic has been implemented.

Some tools are developed along with the game to help to make maps and other game assets. The map generator which can rasterize paths and polygons into splat maps could be proof of the ability to implement basic features from scratch.
3D modeling I also required for making the game and I had to learn 3ds max and Blender by myself. After a long time of practicing, I am confident to say that I am capable of dealing with most of the modeling and animation tasks.

Download link

https://drive.google.com/open?id=19g351HbjmlAu0iPWtcl4luVnRrSmpfZw

Screenshots:

A tiger tank confronting T-34 tanks. The armor is too thick to be penetrated thus the shell ricocheted:

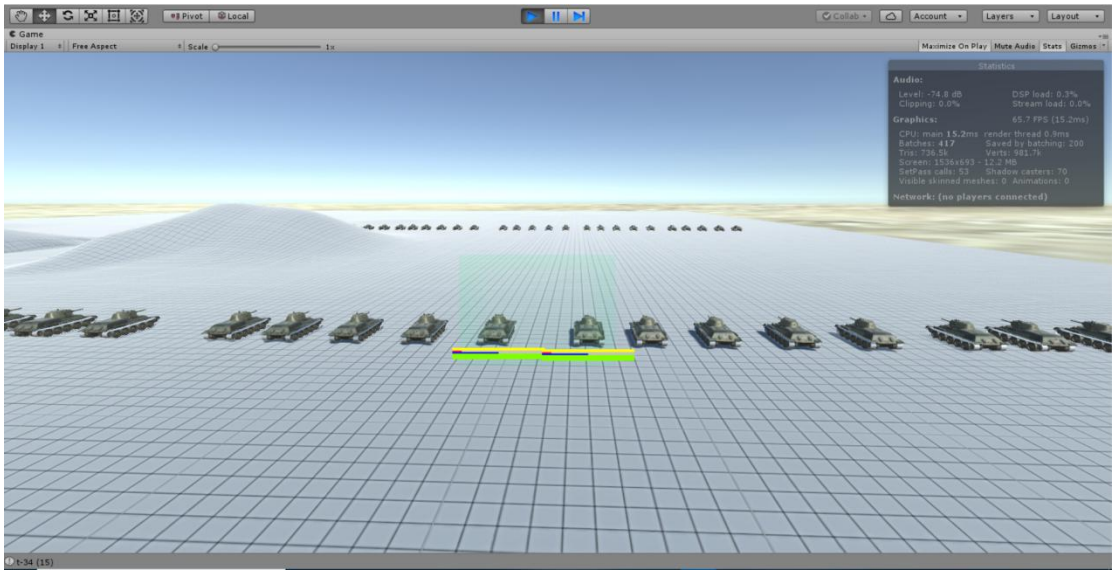
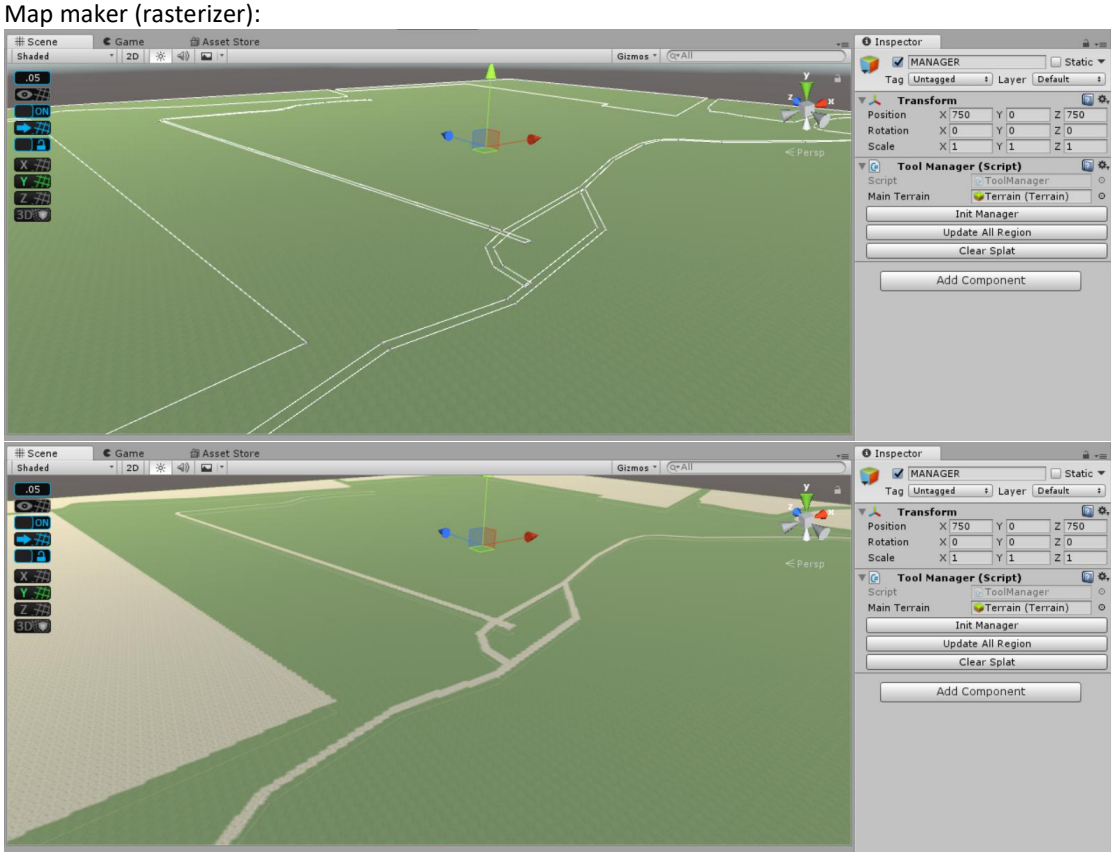
Aiming with scope (next page):

Destoryed Stug assult gun and T-34 tank:

Stug assult gun fighting along with AI (next page):

Track deformation based on terrain height:

Commander mode (next page):



Map maker (rasterizer):