Final Projects 2020!

This is a list of potential final projects and some criteria for grading. This is your chance to apply all the things you learned this semester!

Please feel free to claim a project by adding your github username and email address! You can either join existing students to form a team (please make sure everybody wants that), or start a new team/solo effort. If there are multiple people working separately on the same project, a comparison for healthy competition will be part of the grading. **Team projects are certainly encouraged.**

Please also feel free to add your own project ideas. The teaching staff will then work with you to define deliverables and scores. In general, some projects might have a high potential for a straight A shortcut—this will be indicated.

Each project will include the following components:

- **Fast Forward** presented in class either live or as a video (30-60 seconds) that gives a very brief overview of the project, due 12/09/2020 1:00pm in class.
- **Final Project Presentation** in class (around 5 minutes) that gives a slightly longer introduction to the project, talks about current progress, and introduces the final deliverables. Presented on 12/14/2020 at 1:00pm in class by all team members (slots assigned via lottery).
- **Final Project Code** on Github, due 12/21/2020 at 11:59pm.
- **Final Project Report** on Overleaf (based on the Web3D conference template), due 12/21/2020 at 11:59pm.

WebGL Nyan Cat! There is a version online already (`https://cwacht.github.io/nyancat/`), but let's make a new one! Maybe UMass Boston themed!
Straight-A chance: low
Interested: haehn <haehn@cs.umb.edu>,

Pixel-Art Scenes! Similar to assignment 2, we want to create pixel-art. This time, we want to load images and then render the image pixels as cubes (probably after downsampling). This has a potential as a new way of creating content or games.
Straight-A chance: high if a full-blown system exists, including the ability of defining different planes for a 2.5D effect. Because then, we might be able to submit it to Web3D
Interested: haehn <haehn@cs.umb.edu>,

Fix the local alignment bug in XTK! Warning: This can be hard to figure out but probably only involves little code changes.
Straight-A chance: high, if results are merged to XTK master
Interested: haehn <haehn@cs.umb.edu>,

2D/3D Animated Art! Anything goes that looks good.
Straight-A chance: only high, if results presented on the chrome experiments platform or for instance as a Three.js official

demo.
Interested: haehn <haehn@cs.umb.edu>,

OpenAnatomy Project 1: Volume Rendering! Create some volume rendering of OpenAnatomy data including transfer functions. It needs to use ray-casting! This can be done using Three.js or with vanilla WebGL (hard!).
Straight-A chance: high, if this gets added to the official platform.
Interested: haehn <haehn@cs.umb.edu>,

WebXR Demos! Anything goes that looks good..
Straight-A chance: only high, if results presented on the chrome experiments platform or for instance as a Three.js official demo.
Interested: haehn <haehn@cs.umb.edu>,

CS480 Intro We need an intro for the CS480 Biomedical Signal and Image Processing course (CS480.org). This intro shall be colorful, can use different technologies, but needs to use at least some WebGL.
Straight-A chance: high, if it will be used
Interested: haehn <haehn@cs.umb.edu>,

Mini-globe rendering for 360 videos! We can easily render the 360 videos with Three.js but it would be fantastic to add special rendering modes such as the mini-globe renderings (More info in the skybox lecture).
Straight-A chance: high, this might be used to capture 360 videos for all UMass Boston classrooms.
Interested: haehn <haehn@cs.umb.edu>,

Image processing with OpenCV.js and Dat.gui Use Dat.gui to show the effects of image processesing on an image in real time using opencv.js!
Straight-A chance: unknown, nobody knows
Interested: haehn <haehn@cs.umb.edu>,

Voxel creator Using Three.js to create a voxel model creator that can export obj or glTF files.!
Straight-A chance: unknown
Interested: haehn <haehn@cs.umb.edu>,

REPLACE WITH YOUR IDEA! Copy this LaTeX block and paste it to add your own idea!
Straight-A chance: unknown, you gotta make a case for it
Interested: haehn <haehn@cs.umb.edu>,