Data & Visualization Weekly Projects Report 2021_10_15

Active Projects

Active Development

- CATalyst data studio vis wall playlist
  - Setup meeting with Jen for next week
  - Goal of short project is to create a web page that will be screen saver for the big vis wall at CATalyst
  - Have process that iterates over videos and live demos of visualizations and creative code works
  - Make it something others can add to over time
  - Should be a great way to be in the driver's seat for what material gets viewed by people visiting the space
  - This will make it easy to have a showcase option for RT's work
- Thermal Imaging Project
  - Had first meeting with Brad Ross and Ed Wellman
  - Received their project directory to explore and several documents detailing the previous steps of the project
  - Sounds like they want someone to explore a few different types of motion detection algorithms by January so they can put that information into next milestone document
  - If possible would like to make the workflow run on the HPC so that they can process videos in bulk
  - Set monday as date to meet and go over material with Ed
- IEEE Satellite Vis Conference Planning
  - Created self updating google form for the Birds of a Feather submission
  - Organized connection for producing the Satellite conference promotional video
  - Attended meeting with videographer and Josh
  - Started thinking about what live streams to watch during the satellite event
  - Reached out to folks who might be interested in showing their services at the Showcase Lunch on Tuesday
- Vulkan on HPC
  - Tested out using OOD with the boids flocking and it works
  - Looked into running rust nannou creative coding library and that still throws the "adapter not found" error
  - Isoloated the glib version mismatch to the `shaderc` library dependency, will investigate `Naga` or `glsllang` to get around this
  - Next step is to take the locally running HDF5 renderer and test it on ocelote
- Streaming Technology for HPC
- Data Visualization Roadshow With Jeff Oliver and Kiri Carini

  - Met last week and discussed upcoming presentations
  - First is Research Training Group for Mathematics, we will be using Jellyfish swimming fluid dynamics data, the big task is simplifying some of this to be used
  - Next is the Special Library Association presentation, we will be explaining to other librarians our approach to explaining data visualization for different groups around campus
- Independent Study Abby Collier
  - Met with Abby and discussed show running techniques
  - This involves taking a step back and figuring out how we are planning to trigger start, end, transition behaviors in the effects that we've generated so far
  - Much more python code getting used at this point than before
  - Getting her support deciding how to make effects transition between their initialization and running states
- Stellarscape Astronomy Multimedia Dance Performance
  - Spent a significant amount of time trying to learn about Kalman Filters to try to use that for positional estimation based off accelerometer data
  - Ultimately this wouldn't work because Kalman requires a second step where we commpare the estimated position against another sensor's estimation and refine
  - If we have to bring in another sensor like this we are better off just mounting a second camera above and using that to track 1 dimensional position
  - Also spent most of the past week adding transition behavior to the various effects that I've generated already
  - Preparing for the tech test next week on Tuesday
- Virtual Nature
  - Officially made contact with Maria Harrington the researcher at UCF who gave the talk at SIGGRAPH on Virtual Nature
  - She and I are meeting next week to review her next grant submission to the games industry giant by the name of "Epic Games"
  - This company sponsored her work previously and she is re-submitting for the next phase of her grant
  - The idea is to become a vis consultant for one of the faculty on campus who can be her on paper collaborator for a Virtual Nature extension to the Southwest
  - Individuals to reach out to at the UA are as follows, Dr. Greg Barron-Gafford, Ellen McMahon, Dr. Scott Saleska, Bryan Black, Aaron Sparks Bugaj
- Radiology 1St Year Resident Carl Sabotke

Consultations

- Lilliana Salas GIS GIDP

  - Lilliana is trying to gather her data on alternative transport mechanisms in the city of Austin
  - I've been helping her collect data for her publication reviewers and introducing the google colab python notebooks for reproducible science
- Laura Miller Math
  - Laura has some really neat 3d flow data of what happens in a fluid when a JellyFish pulses and I'm trying to help her create some non vtk/visit visualizations
- Kirsten Ball ENVS
  - Worked with Kirsten's Soil Data to try to produce parallel coordinates plot of different microbe community percentages under the different categories of Irrigation, and Depth of the sample
- Arminda Estrada, ECE
  - Arminda and I worked on trying to get her machine to remotely display the ROS open source robotics program with Nvidia Hardware Acceleration

Upcoming

- TURN UP Festival Performance NYU/UA collab
- Volumetric Capture processing on HPC
- Has Faculty Collaborations With Holodeck
- Ray Tracing On The Hpc
- Observablehq Portfolio Of Data Visualization

Completed For Fiscal Year

Recently Completed

Workshops/Trainings

- Mt. Lemmon In Your Pocket-Creating A Virtual Reality Tour
  - https://rtdatavis.github.io/#GIS_week2020
- Presentation For Civil Engineering Department
  - https://docs.google.com/presentation/d/15Z9zcxU4vIIgFPnKEcaGv9GH7JtjNdx4Xpnjec0EzEc/edit
- Resbaz Organizer And Workshop Provider
  - https://hackmd.io/-XS5Mqh8TA2EHjTHCQ_4tw
- Tech Core Level Up Presentation Monday, Sept 28 2020
  - https://rtdatavis.github.io/#techcoresept28
- Tech Core Level Up Presentation Tuesday, Mar 17 2020
  - https://rtdatavis.github.io/#techcoremar20
- Womens Hackathon: Visualization On The Web Workshop
  - https://womenshackathon.arizona.edu/
  - https://www.youtube.com/channel/UCe1YiJ53o3qcayVs4cipeXA/videos
  - https://www.youtube.com/watch?v=VLwPOtqW8oM

Completed Projects/Collaborations

- Collaboration With Techcore'S Summer Internship
  - https://hackmd.io/xi_m4Kj6QDenBR3ZAfN3iw?edit
  - 'Project folder on gdrive': 'https://drive.google.com/drive/folders/13v9QfUFVjQD-x7dh8chQZFvAxmy5zmx6?usp=sharing'
  - 'videos': 'https://drive.google.com/drive/folders/18tT28oLiXFH1wH8NGUwSU1K0URyzJq9o?usp=s
  - 'Pecha Kucha style presentation': 'https://docs.google.com/presentation/d/1n6ggKJ-oG7fqHfVsLMnuYkAVh095B1RA7EcNx1RQ12M/edit?usp=sharing'
  - 'presentation video': 'https://www.youtube.com/watch?v=EiQ9S5lNbA8'
- 3D & Vr Retrofit Azlive
  - https://rtdatavis.github.io/#retrofitAZLIVE
- Bio5 Virtual Reality Tour
  - https://rtdatavis.github.io/#bio5-vr-tour
- Covid Retail Mitigation Web Scraping
  - https://rtdatavis.github.io/#retailscraping
- Force Directed Biochem Networks
  - https://rtdatavis.github.io/#biochem-networks
- Migrant Forensic Empathy Project: A Digital Borderlands Grant Initiative
  - https://mfemigrantdeathmap.baylyd.repl.co/
  - https://devinbayly.github.io/digital_borderlands_conversion/src/mesh_test.html
  - https://devinbayly.github.io/digital_borderlands_conversion/src/index.html
  - https://hackmd.io/Qo_HmwmwSTG-QPYVTJl0Lg?view
  - https://osf.io/v9swc
- Neuro Choropleth
  - https://rtdatavis.github.io/#neuro-choro
- Oyster Vibrio Literature Review
  - TBA
- Spring Break Covid Photo Maps
  - https://rtdatavis.github.io/#spring-break-covid

Completed Consultations

- Discussion about Social Network Analysis Visualizations
  - NA
- Advice For Thesis Defense Visualizations, Sabrina Nardin
  - NA
- Bryan Carter Photogrammetry
  - https://sketchfab.com/3d-models/churche-maze-photogrammetry-d0767af08a5d498fb960efe3ac83385f
  - https://drive.google.com/file/d/11E5_912vW6kuPBxcujGKs-UQD9S3jA-H/view?usp=sharing

Infrastructure Developed

- Remote Visualization Infrastructure Development spring 2021
- Autamus Web Interface

  - https://rtdatavis.github.io/#autamus_interface
- Virtualgl For Nvidia Accelerated Remote Hpc Visualizations
  - https://rtdatavis.github.io/#virtualgl
- Xpra And Singularity For Comprehensive Graphical Application Support On Hpc
  - https://rtdatavis.github.io/#xprasingularity

Protocols and Analysis Developed