

Data & Visualization Weekly Projects Report

2021_10_08

Active Projects

Active Development

- TURN UP Festival Performance NYU/UA collab
 - None
- 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
 - Isolated the glib version mismatch to the `shaderc` library dependency, will investigate `Naga` or `glslang` 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
- Stellerscape 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 compare 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 ENVIS
 - 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

- 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=sharing>
 - '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