Data & Visualization Weekly Projects Report 2021_03_05

Active Projects

Active Development

- Argonne Gpu Hackathon
  - Blake asked if he could join, so I spoke with organizers again
- Biosphere 2 Biosystems Visualization Collaboration
  - Started working on exploring unreal engine offerings related to our eventual visualization
  - Omani says the mist engine might be what we need for particle systems?
  - Created https://repl.it/@baylyd/quadtreeroot#script.js ,https://quadtreeroot.baylyd.repl.co/
  - Started working on Numpy method of calculating Luminosity of texture based on the distance that pixel lies from the nearest root point
  - Will use this texture for particle movement against or with value gradient
  - Ran into memory limit for certain sections of the root system on a Jetstream allocation
- Bryan Carter Photogrammetry
  - Met Bryan last week for a Metashape Demo
  - Talked about how access might work with the HPC
  - Need to explore the setup of Tyson's license inside the HPC environment
  - Discussed using UA's Apporto as a means of getting his studentt up to speed
- Independent Study Abby Collier
  - Met up and answered questions related to previous week's exercises
  - discussed intricacies of D3 data binding
  - Covered the dynamics of adding and removing data without a key function
  - Moved on to some very basic code for reacting to user generated events such as "Mouse Over" "Mouse Out" and "Click"
- Judging The Data Visualization Challenge
- Migrant Forensic Empathy Project: A Digital Borderlands Grant Initiative
  - First official week of development for this project.
  - Spent most of the time working on retrieving and modifying the landscape model of Southern AZ near "Oregon Pipe National Park"
  - Experimented with the Meshlab python api for programmatically editing/filtering large point clouds into meshes
  - Drafted process for systematically importing existing assets into Aframe
- Remote Visualization Infrastructure Development

  - Worked on Jeremy Fischer's exosphere Nvidia JS Ubuntu 18 instance
  - Worried that their Nvidia V100 gridded VGPU isn't going to actually work for Vulkan which will limit the access to modern graphics development that researchers can do in their instances
  - Uncertain whether this is going to predict whether Vulkan will work with our V100s and K80s since they aren't currently being subdivided into virtual GPUs
  - Will be trying all of my steps on Exosphere outside of singularity containers this week to determine if singularity is the problem
- Resbaz Organizer And Workshop Provider
  - Got access settings set correctly for Alex to modify the document
  - Discussing individual tasks with Chinmay for the Zoom and Youtube coordinators
- Stellarscape Astronomy Multimedia Dance Performance
  - Got commercial license for Touch Designer
  - Exploring the differences from the free version
  - Learning to use the geometry shader section of the opengl pipeline to change the primitives that I operate on from points to lines
  - Exploring and recreating the techniques used in MONO-COLOR, Latent Space and Fulldome show by Marian Essl https://derivative.ca/community-post/monocolor-latent-space-and-fulldome-environment
  - Hitting snags related to renders that are higher resolution than 1280x720
  - Discussing options for movement 1's camera setups with Win Burleson
- Womens Hackathon: Visualization On The Web Workshop
  - Provided support for other workshop presenters
  - Assisted with questions related to presenation methods during the virtual hackathon
  - Helped upload a few different presenter's videos to the youtube channel

Consultations

- Bryan Carter Photogrammetry

Upcoming

- Cyverse Container Bootcamp Sig On Remote Visualization
- Has Faculty Collaborations With Holodeck
- Jason Hortin Holographic Dance Graduate Project
- Observablehq Portfolio Of Data Visualization
- Oyster Vibrio Literature Review
- Ray Tracing On The Hpc

Completed For Fiscal Year

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
- 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

Completed Projects/Collaborations

- 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
- Neuro Choropleth
  - https://rtdatavis.github.io/#neuro-choro
- Spring Break Covid Photo Maps
  - https://rtdatavis.github.io/#spring-break-covid

Infrastructure Developed

- 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