

Data & Visualization Weekly Projects Report

2021_02_22

Active Projects

Active Development

- Argonne Gpu Hackathon
 - Submitted an application to participate in the Argonne GPU hackathon which takes place at the end of april
 - Team mates are Sara Willis, Chris Reidy, and Abby Collier
 - Our project is to produce a gpu accelerated flocking simulation that we can remotely visualize from a demo created to run only on a single cpu
 - Waiting on updates about our application
- Biosphere 2 Biosystems Visualization Collaboration
 - Succeeded at parsing the converted .vtu file into a mesh surrounding the points of the root simulation
 - Started a small example openprocessing sketch to explain the work to others, and myself at a later date
- Bryan Carter Photogrammetry
 - Met and discussed array of different upcoming potential partnerships with the new center for digital humanities.
 - Potential project to explore using the Nvidia Omniverse for streaming the results of HPC calculations/render to center for digital humanities
 - Discussed meeting with Tyson to get started learning to use Metashape for his photogrammetry needs
 - Discussed using jetstream allocations instead of their AWS accounts to provide on demand access to media for their research projects from user's phones (didn't go into details about this)
- Independent Study Abby Collier
 - Met and addressed questions about the first week of using d3
 - Moved away from the template literal svg creation that is in vogue, and revisited the roots of d3 and DOM management with selections
 - Invited her to participate in the Argonne GPU hackathon as an extension of the datascience side of her independent study.
 - Worked on using the element to organize our data in the graphics, and apply transforms to many elements at the same time.
 - Used the elements to learn about how to create axes for our visualizations
- Judging The Data Visualization Challenge
 - Started going over the website for information related to my judging duties
- Migrant Forensic Empathy Project: A Digital Borderlands Grant Initiative
 - Met with Jonathhan Crisman to get more details about the files that came with his folder of student work

- Looks like i'll need to borrow an oculus in order to demo his scenes so that I can see what to create
- Will reach out to Jen Nichols, and Jonathan again to get help with this, Bryan Carter is where Jonathan got his temporary set so I might start there also
- Presentation For Civil Engineering Department
 - Decided on the examples I'll be showing
 - One finite element method visualization of stress forces spreading through a model
 - Second one is going to be an Aframe scene of an intersection with car models steered by data coming from "CityFlow" the open source traffic simulator
- Remote Visualization Infrastructure Development
 - Successfully configured new desktop to work as build environment for the singularity containers that will have remote visualization/advanced graphics capability
 - Did test with nvidia/vulkan (openGL's successor) and was able to get graphical windows from the vkcube, and all of the rust gfx-hal demos
- Resbaz Organizer And Workshop Provider
 - Met with rest of organizing group
 - Put myself down as one of the two youtube/zoom coordinators since that role is similar to how I'm helping the Women's hackathon
 - Pitched an ObservableHQ visualization workshop and Alex Bigelow is going to coteach and help with development
- Stellerscape Astronomy Multimedia Dance Performance
 - Met with Kay to discuss development of particle system behaviors
 - Had a second meeting with her in the week to test out whether my iMac Pro desktop is faster than the resources she has, appears a mixed result
- Womens Hackathon: Visualization On The Web Workshop
 - Brainstorming and organizing material for my upcoming pre-recorded workshop on creative coding with p5.js

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
- 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