Data & Visualization Weekly Projects Report 2021_03_19

Active Projects

Active Development

- Argonne Gpu Hackathon
- Biosphere 2 Biosystems Visualization Collaboration
  - Met with Omani
  - She was able to present some of her previous examples of biological scenes using unreal engine, super impressive
  - Plan is to make use of unreal's effects bound to wireframe models
  - I'll now try to produce a large number of converted meshes that she can try to import for running various types of VFX on
- Cyverse Container Bootcamp Sig On Remote Visualization
  - Didn't hear from anyone about interest in adding a special interest group on this subject so didn't attend the workshop
  - Will reach out and see if there is any other opportunities to discuss remote visualization from containers
- Independent Study Abby Collier
  - Met on friday
  - Discussed her feature piece for the data visualization section of the independent study
  - Worked on creating data that would lend itself to a heatmap representation of the squirrel population of central park
  - Additional experimentation in the direction of "details on demand" by providing interesting select "notes" from the data when a user mouses over a tile of the heatmap
  - Preparing for the wrap up week of the web visualization material
- Judging The Data Visualization Challenge
  - Met with Jeff Oliver and Kiri Carini to host a peer review session
  - Several individuals showed up with questions about whether their projects qualify
  - At the end we discussed options for Kiri to join our Data visualization roadshow for departments interested in geospatial visualizations
  - Reached out to Stephen Rains in the Department of Communication to offer a presentation for his upcoming Computational Social Science (CSS) mini conference, but he said the sessions were all full and they didn't need more presentations
  - He did send our email offer for intro to data visualization presentations to Joe Galaskiewicz who's the director of the CSS certificate program
- Migrant Forensic Empathy Project: A Digital Borderlands Grant Initiative
  - Heard back from Jonathan that the grants have been submitted
  - He put in a second grant to "recharge" for my time if comes through so we will probably have to talk about the finances of that again

- Remote Visualization Infrastructure Development
  - Finished converting a working graphical simulation of flocking points
  - This is a quintessential n-body update algorithm that would be a good indication of the workflows capability for running compute tasks on the gpu and rendering the results in realtime
  - Will be testing this out on exosphere this week
  - If that's successful then I will work on getting the example setup on our HPC
- Resbaz Organizer And Workshop Provider
  - Meeting with Alex Next week
  - More planning conversations on Trello regarding zoom usage
- Stellarscape Astronomy Multimedia Dance Performance
  - Produced first MONOCOLOR inspired geometric scenes
  - Spent time in the week working with derivative community to troubleshoot performance of the geometry shader, it appears that the radeeon pro vega 56 card on the imac pro may not be as performant as we hoped
  - developed a visualization of particles driven by a vector field based on the mathematical operations curl and divergence and the mouse input
  - Converted fluid mechanics particle system to be driven by kinect depth sensor mode
  - Experimented with James Wadsley's SPH program "Gasoline", but cannot get past an error which comes up on the Jetstream cloud instance when running with pthread on 6 cpu cores
  - So far no suggestions from the developers on the github issue I created for this

Consultations

Upcoming

- Bryan Carter Photogrammetry
- 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
- 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

- 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