

Data & Visualization Weekly Projects Report

2021_10_25

Active Projects

Active Development

- Annalysa Lovos Publication Figure Rescaling
 - Annalysa was an audience member for the brief presentation that I did with the Brain Modeling Workgroup
 - She is working on a neuroimaging paper and needed to improve the resolution of some of her figures
 - She had a very tight turn around and didn't reply to the second email offer of when to meet but was able to figure out something
 - She is going to reach out if the reviewers ask for anything else
- ENVIS Term paper Consultation on Cu⁺ exposure and environment resilience
- CATalyst data studio vis wall playlist
 - Talked with Katie the assistant Manager of Catalyst about whether they need material for presenting on the screen for the Home Coming weekend, and she didn't reply before writing this reply
 - Figured out how to use youtube links in the screensaver web app so now Jen Nichols and other individuals can provide video links that they want the bi display wall to show on a playlist
- Thermal Imaging Project
 - Started working on the research for a method of keeping in memory some number of detected objects in motion with a way to compare a new frame's detections against this list to update existing ones and add brand new tracked objects to the list
 - Sent updates email to Brad and Ed earlier this week asking about how the "robustness" of the computer vision is going to be calculated
 - Sounds like this is another open question related to the project
 - Looking up implementations of Boundary Box Overlap and the Hungarian algorithm for tracking multiple objects
- IEEE Satellite Vis Conference Planning
 - Talked with Barry and Todd to setup a filming opportunity this week of the HPC machines for the promo video
 - Sent out more Showcase invitations to members of the community
 - Helped produce material for the health sciences newsletter advertising the satellite conference
- Vulkan on HPC
 - Got a free moment to do a test of creating a singularity container on the work machine created with Alec's SHPC program that I then modified with a vulkan installation and the rust webgpu code
 - Then transferred this to the HPC and it was able to render graphical windows there

- This frees us up from only using one vulkan version that's installed on the HPC, and may extend to other supercomputers as well
 - Issue remains about how to create necessary ICD files when they aren't provided on the system by the Nvidia driver installation, will ask Adam about this some day
- Streaming Technology for HPC
 - Had a meeting with Ryan Tombleson from the Main Library TESS IT support group
 - Discussed the workflows that I use for remote visualization that all rely on the HPC VPN
 - Asked whether there would be issues with connecting the catalyst vis pc to the VPN when we want to do some realtime HPC visualizations either with OOD or some customized GUI
 - He's very open to the idea and couldn't imagine any reason why we wouldn't be able to do this
 - Set another meeting for the first week of November to test out things after Cisco Anyconnect install
 - Then spent the rest of the meeting demonstrating Omniverse and it's Paraview connector with the idea that we may be able to use the vis pc omniverse client to display the results of operations happening on the HPC if I can get it setup with Omniverse singularity
- Data Visualization Roadshow With Jeff Oliver and Kiri Carini
 - Had 2 presentations this week
 - RTG presentation for Laura Miller and Kevin Lin which went well
 - Gave presentation for 50 people in the Special Libraries Association, Science Technology Community
 - This presentation was more meta because we presented on the way that we give presentations to groups around the University of Arizona
- Independent Study Abby Collier
- Stellerscape Astronomy Multimedia Dance Performance
 - Spent most of my time this week on research data renders for the show
 - Figured out a new way to load way more data into touch designer
 - This allowed me to enter an entire SPH simulation into memory and render at 60 fps the behavior of the 100000 gas particles over the course of their 1000 time step simulations
 - I was then able to write an interpolator so that we could play at what ever speed looks best for the fixed media video
 - Tried to render these videos on Kay's machine and the results really don't look good for some reason, have more meetings planned to finish this before the end of next week
 - Made plans to meet next week to plan out the next tech test rehearsal
- Virtual Nature
 - Facilitated connection of Maria and Greg Barron-Gafford, setup meeting for them to discuss grant opportunity
 - Met with Omani to start talking about how the Niagara particle

- system tool works within Unreal
- Radiology 1St Year Resident Carl Sabotke

Consultations

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=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