Lecture 12 – Notes

IS 590DV

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Fun Activity:

Visualization 1- False colour image- not visible to human eyes

- To show how big the black hole is and showing sun and pluto
- To show scale difference

Visualization 2- Family tree of dinosaurs

On selecting a point on scatter plot displays the species description and it's location on the right corner

Scientific Visualizations:

Spatial data

1. Smoke flume example- particle effect, direct rendering of volume data
2. Polygonal surface- triangle-planar
3. Point cloud: largest type of dataset, most efficient, points scattered through volume
4. Volumetric- e.g. – ink falling in water
5. Scalar- information has scalar datatype, information takes 1 float per cell, vectors are comparatively larger- GIS software can create these visualizations
6. Vector-wind map-reading live- 3rd vector data can be stored as scalar or volumetric
7. Magnetic field- on the outer 3rd of the Sun. Yellow portions created using magnetic field
8. Quad tree, stretch tree

Spatial data types- Statistical, observational, simulated by computer models

Point data visualization-

1. Dots with scale- when viewed closely, gaps can be seen clearly
2. Sprites- gives neat looking visualization
3. Meshing- creates polygon surface over the points

Polygon data visualization-

1. 2D data
2. 3D Scan data

Scalar fields visualization-

1. Slices
2. Iso-surface
3. 3D col)umetric rendering

Vector fields visualization-

1. Arrow glyphs
2. Streamlines