

EnVision Lab

Aaron Birkland Cornell Center for Advanced Computing

Data Analysis on Ranger January 2012



EnVision Guided Visualization

- An easy-to-use web-based tool for remote scientific visualization
- Available through the Longhorn Vis Portal
- Developed at TACC
 - Funded in part by TeraGrid and the DoD PET program
 - Development team: Greg Johnson, Steve Mock, Brandt Westing, Matthew Hanlon



- Navigate to the "Jobs" tab
- End any currently running jobs
- Select the session type "EnVision guided visualization"

	Longhorn Visualization Portal	Coogle
Allocations Jobs Heip Admin Vislab	Visualization Portal	TACC\gregj logo No job running.
Start a Job		
Resource: Longhorn		
Project: AdminLonghorn		
Session type: VNC • EnVision guided visualization • IP	lant	
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• Load the mummy data in the remote file browser (click the Examples shortcut)

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Image: A state of the state	
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Home Allocations Jobs Data Visualization Algorithms Rendering Snapshots Help Admin Vislab	K
Import Data Envision currently supports VTK formatted data sets. These files will be highlighted and include files with the extensions: .VTK .VTU .VTI .VTS .VTR .VTP. Please select the data file you would like to import: Remote File Browser Continue Filename for continue	



Run an EnVision session

• Click the Isosurface icon





- Add an isosurface with default parameters
- Note that the default value is 127.5. This is the midpoint of our range of values. It will draw a surface over all points with that value.

	Longhorn Visualization Portal	TACC\gregj logout Resource: Longhorn (Job 1054)
tate	Home Allocations Jobs Data Visualization Algorithms Rendering Sna	apshots Help Admin Vislab
ataset Information	Isosurface	
Dimensions	Enter the variable name scalars	
min: 0 max: 239.522	Select the value 127.5	
y	Color by scalars 🗘	
	with an opacity of	
min: 0 max: 242.951	Add Cancel	
Variables		
min: 0.0000 max: 255.0000		
dded Algorithms		
algorithms added.		



Run an EnVision session

• See the visualization in the Rendering tab





Run an EnVision session

• Click the cutting plane icon in the toolbox.





Run an EnVision session

• Keep the default values; click Add





 Click the hand next to the cutting plane under Added Algorithms; use the widget to interact





- Drag the arrow point(s). What do they do?
- Drag the ball in the center of the slice. What does that do? What are the limitations on its movement?
- Drag the frame surrounding the slice. What does that do?
- Click the hand to finalize.





Run an EnVision session

 Click the Eye next to each added visualization algorithm to hide





- Click volume rendering icon in the toolbox
- The transfer function maps dataset values to colors or opacity
- Transfer function boxes are empty. Clicking or dragging the mouse pointer shapes this mapping





- Manipulate the transfer function boxes until you get something that looks as shown.
- The dataset value range is implied by box width. As these boxes are for quick/easy/rough selection, they are not labelled with values.





- The opacity and color transfer function emphasizes certain value ranges
- Enable/disable the isosurface and slice visualizations. Is there a correlation with the volume rendering?





- Click volume rendering icon in lower left to try different transfer functions.
- Try different values for the isosurface visualization. These images are for values of 8.5, 64.6, 127.5, and 220. What is this showing? Why?





 Explore the isotropic turbulence example data on your own

