Visualization

John Huffman
Mark Howison
Andy Loomis

User Services & Support
Tue 7/26
Barus and Holley, Room 190

1:00 - 2:00 Welcome & Introduction to CCV
2:00 - 3:00 Effective use of CCV resources
3:00 - 3:30 [Refreshments]
3:30 - 4:30 TeraGrid

Wed 7/27
ROOM CHANGE: MacMilllan 115

1:00 - 2:30 Scripting and Python
2:30 - 3:00 [Refreshments]
3:00 - 4:30 Programming with OpenMP

Thu 7/28
ROOM CHANGE: MacMilllan 115

1:00 - 2:30 Programming with MPI
2:30 - 3:00 [Refreshments]
3:00 - 4:30 Programming with CUDA

Fri 7/29
Barus and Holley, Room 190

1:00 - 2:00 Visualization
2:00 - 2:30 Parallel I/O
2:30 - 3:00 [Refreshments]
3:00 - 4:30 Debugging and Profiling
Motivations for Visualization

Don't just think about what you want to visualize, but why?
Data Exploration
Validation/Verification

Dissemination of Information

- Outreach
- Teaching
- Publication
Visualization Hardware Resources

- The CAVE
  - An immersive 3D display system in an 8’ cube
  - CrystalEyes LCD-shutter glasses for stereo depth-perception
  - Intersense and Polhemus tracking devices
  - *Undergoing a complete redesign for Spring 2012*
Visualization Hardware Resources

Desktop visualization can now be much more immersive
The Future of Brown Visualization

The New CAVE

- Much larger space
- 160M pixels, 70 projectors
- Wireless Tracking

Digital Scholarship Lab Tiled Display Wall

- Single computer, easier to use (desktop applications)
- Higher resolution, larger screen
- Easy and full access within the Rockefeller library
The Future of Brown Visualization

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Visualization Software

Visualization Software Available on Oscar
Desktop Visualization
Cave Visualization
VisIt

• General Purpose Visualization Toolkit
• Ideal for data exploration
• Multi-platform
• Supports a wide variety of formats
• Large user community, well supported
Visit

Supported file formats:

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<tr>
<th>ANALYZE</th>
<th>GIS</th>
<th>Silo</th>
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<td>Spheral</td>
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Paraview

- General purpose visualization tool
- Built on top of VTK toolkit
- Some support for Cave
- Commercially supported
- Many file formats supported
Images from VMD website, http://www.ks.uiuc.edu/Research/vmd/
Matlab

Images from Mathworks website, http://www.mathworks.com
ARC Gis

Image from website http://hereindubhlinn.blogspot.com/

Image from
Volume visualization

- Osirix (Mac only, but supports some iPhone functionality)
- DeskVox/CaveVox
Amira/Avizo
Using the Cave

Existing Applications:
• Cave Writing
• Cave Painting
• Cave Vox
• VMD
• ADVISER

Developing for the Cave:
• VRG3D  [http://sourceforge.net/projects/vrg3d/](http://sourceforge.net/projects/vrg3d/)
• XVR  [http://www.vrmedia.it/](http://www.vrmedia.it/)
• Blender?
Cave Visualization

CaveWriting

- Taught each semester by John Cayley
Cave Visualization

- ADVISER (Jim Head PI)
  - Large image processing
  - Multiple images
  - High end storage
  - High end visualization
Cave Visualization

VMD
Contact Info

For more information:
- (401) 863-7557
- info@ccv.brown.edu

For support:
- support@ccv.brown.edu

Keeping in touch:
- System updates from Twitter: ccv_brown
- User mailing list: users@ccv.brown.edu
- Website: ccv.brown.edu

Hours
8:30 – 5:00 (Academic Year)
8:00 – 4:00 (Summer)