



CSE 190: 3D User Interaction

Lecture #11: System Control
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Announcements

- Homework assignment #3 due Friday, February 22nd at 1pm in Sequoia lab 142
 - Grading starts at 12:30
- Homework assignment #4 comes out this weekend: will use Kinect
 - Sign out Kinect in my office starting Friday afternoon
- Calit2 undergraduate scholarship
 - Application deadline March 11
 - <http://ucsdstudents.calit2.net>

Paper Presentations Next Lecture

- Kit: CaveUDK: a VR game engine middleware
- Spencer: TBD
- Ken: TBD

Paper Presentations Today

- Think: 3D Multi-view Autostereoscopic Display and Its Key Technologie
- Suman: Real-time Panoramic Mapping and Tracking on Mobile Phones
- Stephen: An experimental analysis of the impact of Touch Screen Interaction techniques for 3-D positioning tasks

System Control

Universal 3D Interaction Tasks

- Selection
- Manipulation
- Navigation
 - Wayfinding – cognitive component
 - Travel – motor component
- System control
- Symbolic input

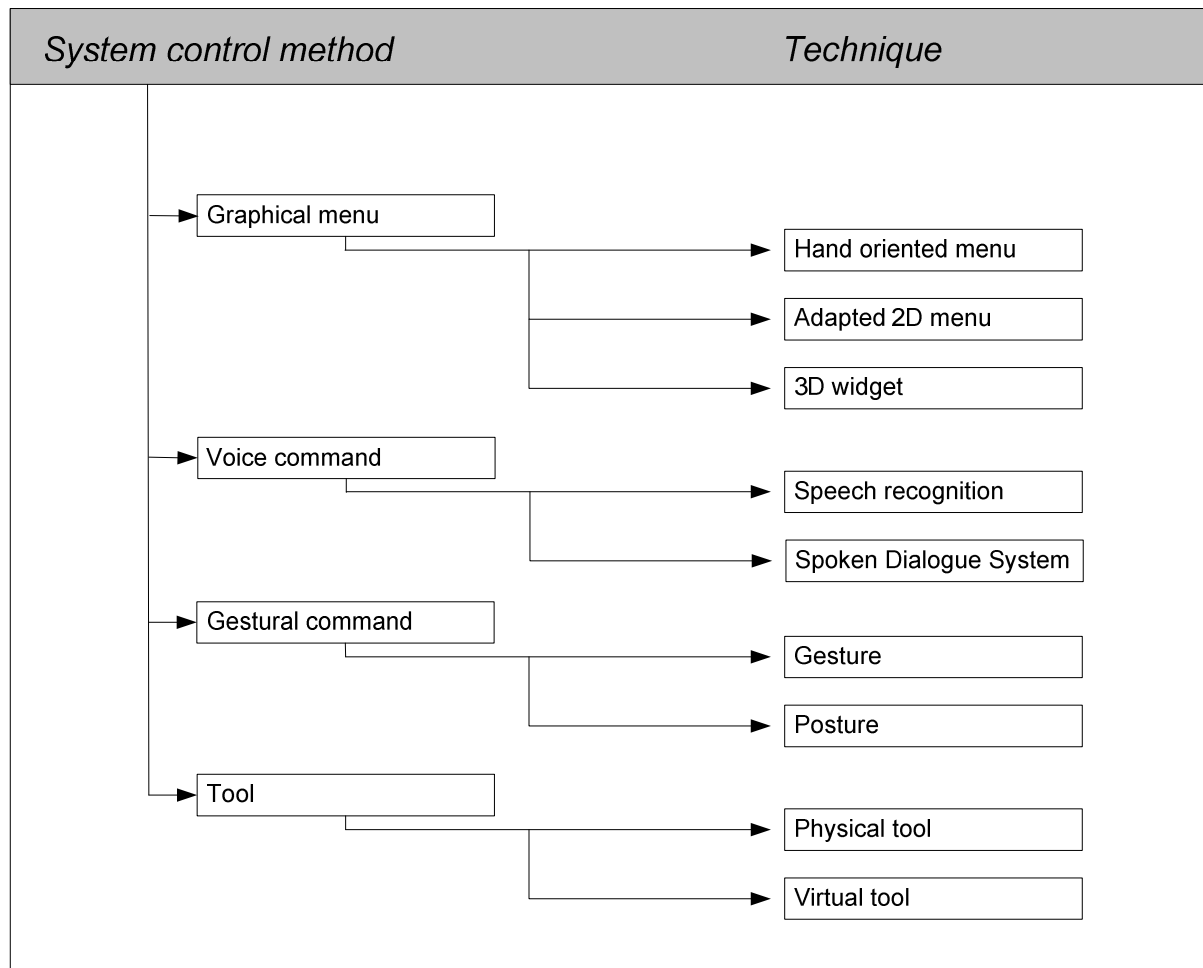
System Control

- Often considered glue of 3D UI
- Commands are issued to
 - request system to perform a particular function
 - change interaction mode
 - change system state

Human Factors and System Control

- Learn from mechanical systems
 - Transfer of mechanical energy or information to a system for performing control actions
 - Control-body linkage:
 - interaction between control device and human body
- Effectiveness of control-body linkage
 - human experience, training
 - shape and size of control
 - visual representation and labeling
 - methods of selection

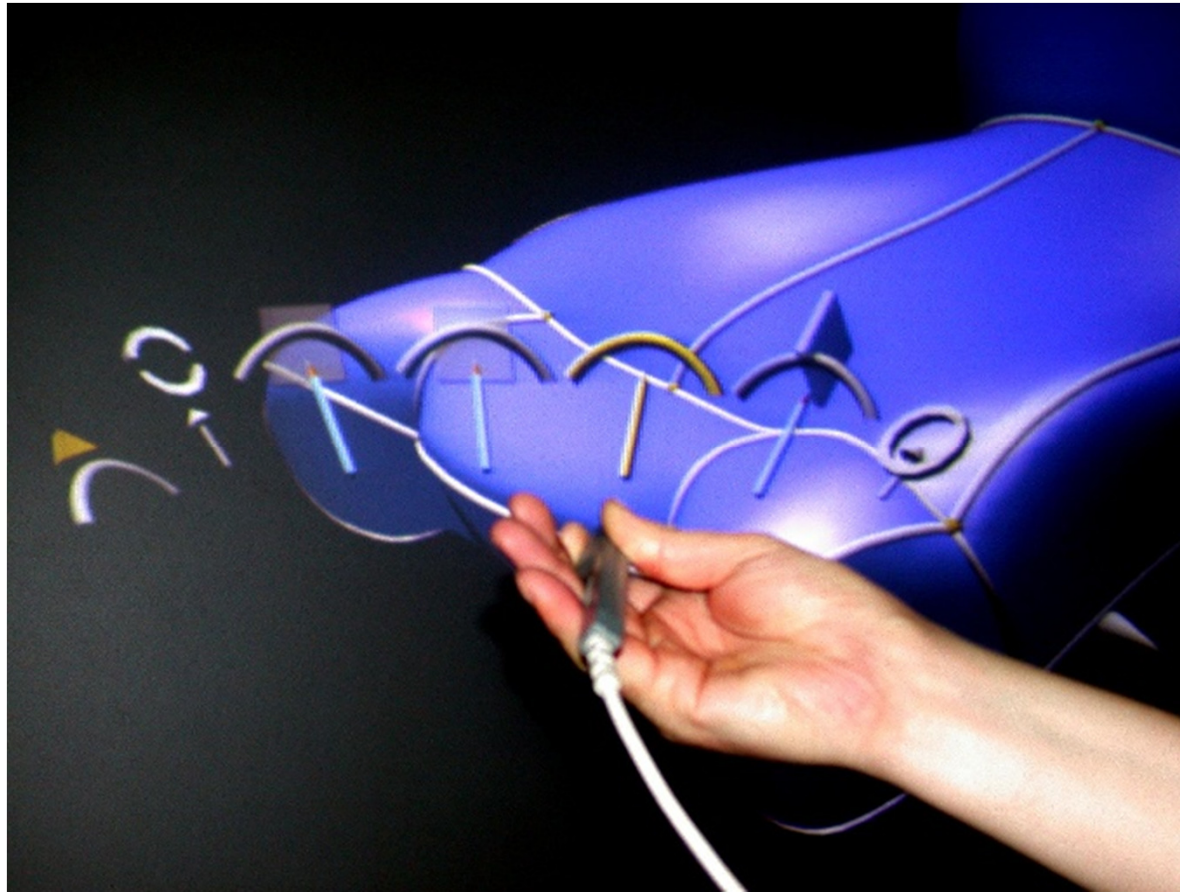
Classification



Graphical Menus – Adapted 2D Menus

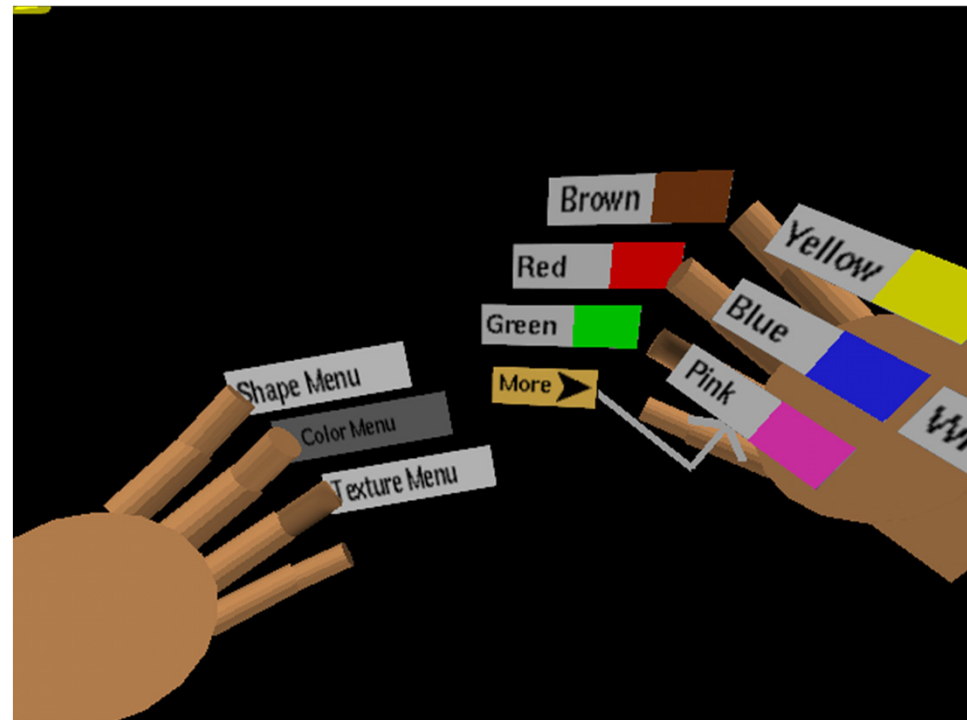


Graphical Menus – 1-DOF Menus

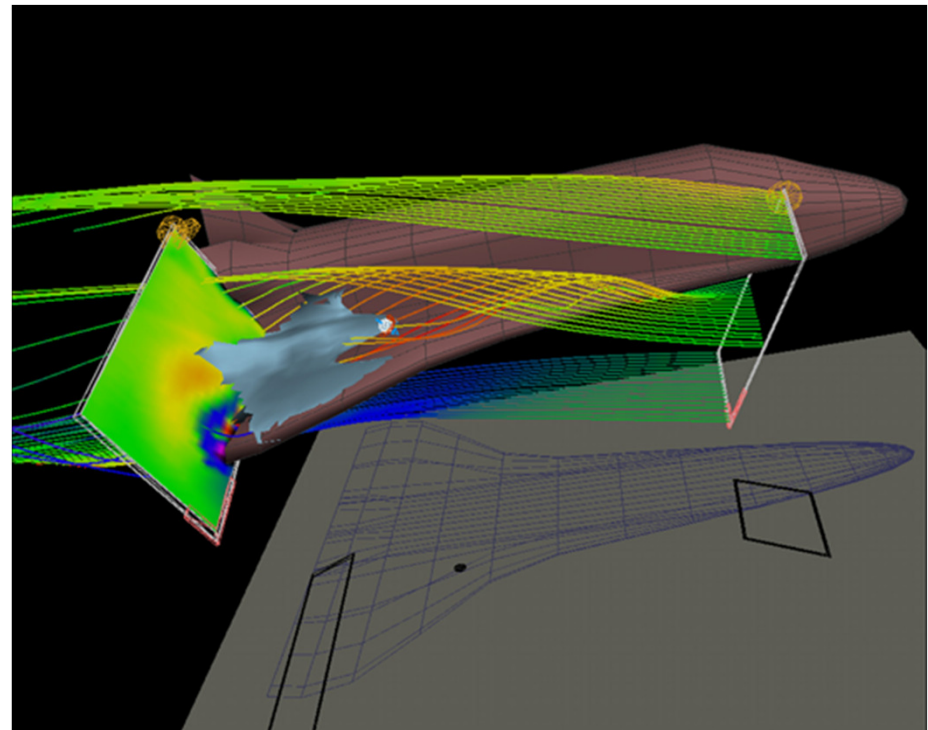
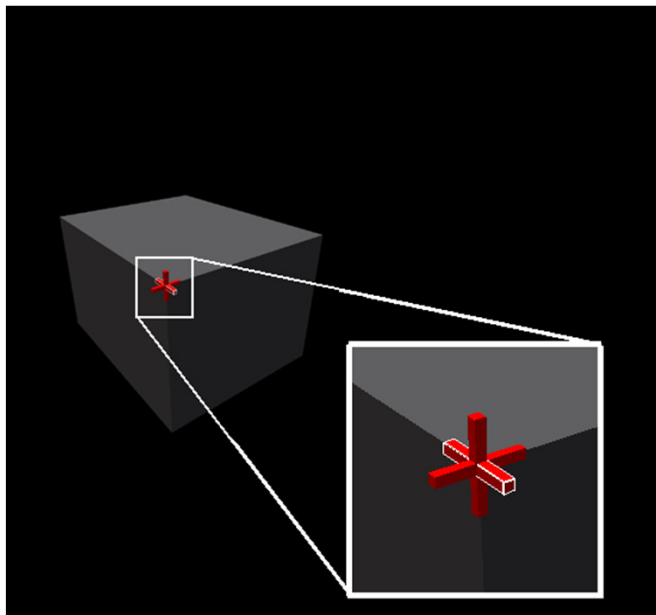


Graphical Menus – TULIP

- Uses pinch gloves
- Limited to 16 menu items
 - 8 per hand
- More than 16 menu items possible with “more” option on pinky finger



Graphical Menus – 3D Widgets (1)



Graphical Menus – 3D Widgets (2)

Command and Control Cube

