Overview: Open Inventor

Open Inventor

- set of building blocks
- based on OpenGL - uses OpenGL for rendering
- focuses on creating 3D objects
- commonly used to render the objects
- creates a scene graph
  - directed, acyclic graph of nodes
  - state machine
  - some nodes modify state
  - object nodes are rendered according to current state

Inventor Objects

- database primitives
  - shape
  - property
  - group
  - engine

- manipulators
  - handle box
  - trackball

- components
  - materials
  - directional lights

Hierarchical Traversal

```
Separator {
  RotationXYZ {
    axis Z
    angle 0
    ElapsedTime {
      speed 0.4
      Timeout
    }
    Transform {
      translation 0 0 0.5
    }
    Separator ...
  }
  Separator ...
}
```
The Scene Database

- Transformation node
- Separator node
- Object node
- Property node

Sample Graph

- Group
- Separator
- Transform
- Property
- Object

Class Tree

- SoBase
- SoFieldContainer
- SoNode
- SoCamera
- SoShape
- SoCube
- ...
- SoEngine
- SoCalculator

Etc.

- Callback function at node
- Selection callback node
- Event callbacks
- Manipulators
OSU inventor flattens tree