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Thinking *inside* the box.

Perception for Realistic Cognition in Virtual Environments (PRCVE)

OBJECTIVE: Enable modelers to quickly and easily integrate models with virtual environments (VE). Provide tools to facilitate psychologically-realistic inputs, using visual-scene representation from VE engines to simplify functional perception.

APPROACH:

- **Standardize**: Design to support many VEs and model environments
- **Integrate**: Provide middleware to facilitate quick, simple, low-cost integration
- **Simplify**: Create software tools that enable the modeler to vary psychological resolution and speed model development

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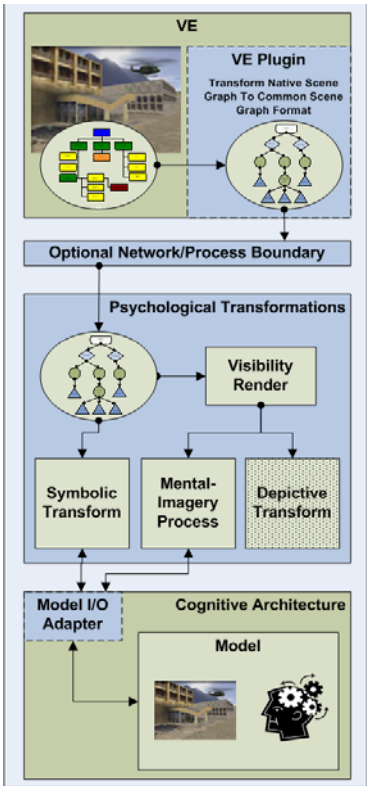
Envisioned PRCVE Tool Suite

- **A standard representation for visual scenes**.
  - Common scene format (CSF) based on scene graph data structure from games
- **The PRCVE Interface:**
  - **Integration middleware**
  - **Psychologically-inspired transform functions**
    - Long-term: interoperable, highly configurable set of functional building blocks f
    - Near-term: Three distinct levels
- **I/O Adapters to support multiple architectures**



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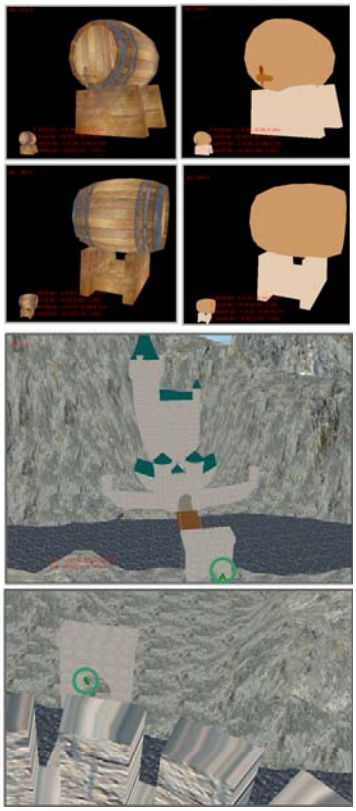
Where is PRCVE now?



- Prototype components
  - WildMagic Scene Graph support
  - Middleware support
  - Visibility rendering
  - Pass-thru symbolic transform
  - SVS
  - Soar I/O Adapters
  - Logging of Soar input
- Scripted demo
  - Integrated cognition/imagery
  - Line-of-sight Reasoning
  - (See Wintermute talk 1 for details)

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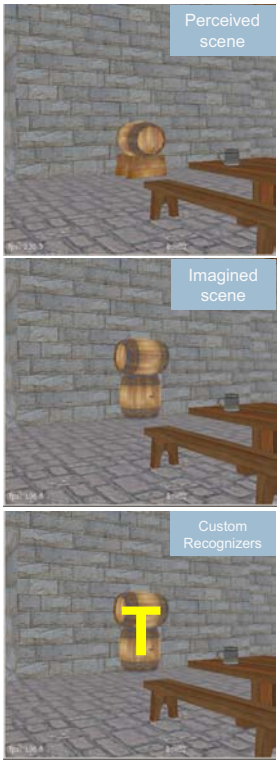
Where is PRCVE going?

- Support for additional VEs
- Completion of initial SVS implementation
- Future extensions of transforms
  - Visual Attention?
  - Salience?
  - Object recognition?
- Experimental controls/UI
- Logging CSF/playback



We need your input

- What features would be most helpful to support basic research?
- Which VEs?
- What modeling tools?
- Which psychological transforms?
- What parameters and settings?

Cognitive Science 2008 forum

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