5 Conclusions and Future Directions

Conclusions

Let's recall the issues I was trying to address with this system:

- Constructing virtual actors that can sense and act
- Interaction at the Task Level
- Reusable Parts
- Continuous Representation
- Seamless Integration with Other Media

As you've seen in this dissertation, my method of addressing these issues is in the design and implementation of WavesWorld, a testbed which directly addresses each of these questions, in turn, with:

- A parallel, distributed agent architecture
- Sophisticated multi-modal GUI tools
- A set of composable modeling objects and a language to bind them
- Reasonable reconstruction of sampled objects
- Sits atop state-of-the art rendering technology (the RenderMan Interface)

Future Directions

- Experiment with Various Agent Configurations
- Faster Graphics, better UI tools
- Need Sound Modeling
- Integrate with other time-based media
- Digital Action Figures

There's clearly a wide open area for looking at ways of configuring agents together. I've spent a few years with Pattie Maes' spreading activation algorithm, and that's clearly a very useful one. I've also done some work on simpler, more directly reactive configurations like a single sensor agent driving a single skill agent. But the work that Bruce Blumberg is doing (**Blumberg95**) is very applicable to sit atop this framework. It

would be interesting to try and incorporate some of that work to on top of this testbed.

As workstation graphics get faster, this framework scales very nicely. It will be interesting to come up with new user interface objects to add to my current collection. I think there's a lot of neat work that could be done there.

My characters live in silent movies right now. An earlier version had sound in it, but because sound modeling and rendering is nowhere near at the level of maturity that 3D visual modeling is, I found it difficult to fit it into my current framework. There's been some work done on this by some researchers in the graphics community, notably at George Washington University, but it's still very early.

It would be interesting to incorporate 3D scenes with other time based media, like QuickTime or the so-called "QuickTime VR". That way, as you watched a movie unfold, you might be able to move around freely.

It'll be interesting to see how soon we see real digital action figures, and how long it will take before kids can take Cyber GI Joe's head and put it on Digital Barbie. *That's when we know we've arrived*.