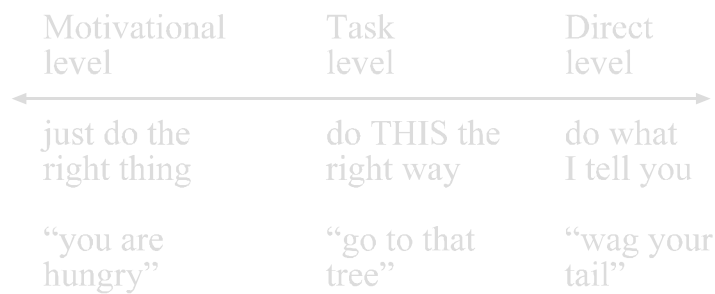


Miscellaneous animation techniques and applications

- Autonomous agents
- Distributed animation
- Augmented reality

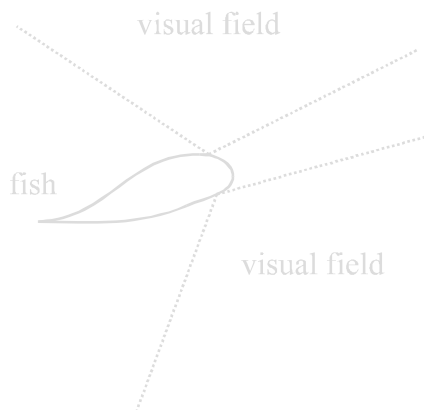
Autonomous agents

- Automatic generation of complex animations
 - crowds
 - things that think...
- Multilevel control

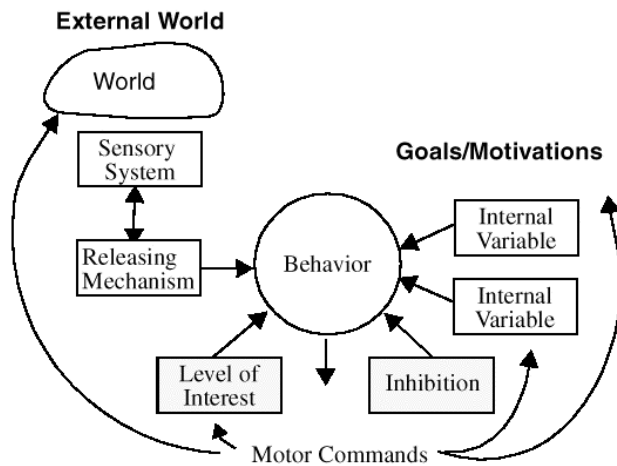


Simulation of perception

- Agents react according to their perception of the world
- Ex: visual field



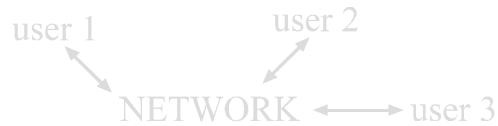
Example of complex control



Distributed animation

- Agents of a virtual world are distributed over the network

- games
- large simulations

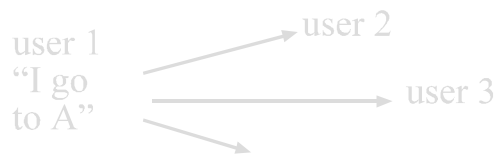


- Difficulties

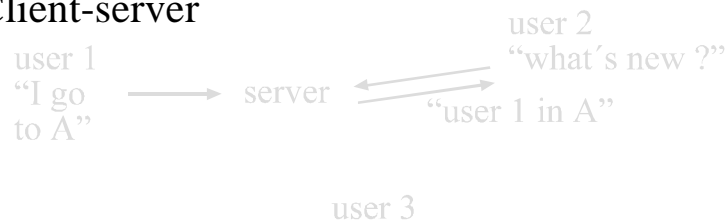
- consistency of replicated databases
- network delays
- interaction between users
- compatibility

Network architectures for distributed animation

- Broadcast



- Client-server

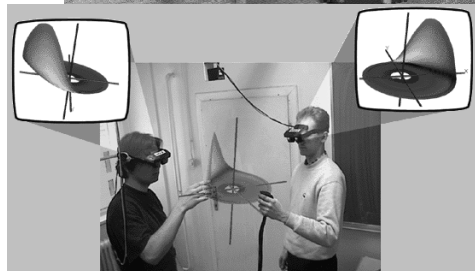


Dead reckoning

- Limit the number of messages
- Send position and velocity
- Allows extrapolation
- Client sends update when extrapolation differs too much from its actual state

Augmented reality

- Add virtual objects to the real world
 - special effects
 - collaborative work on virtual objects
- Difficulties
 - mapping virtual to real
 - virtual/real interaction



References

- Terzopoulos, Rabie, Grzeszczuk, *Perception and learning in Artificial animals*, Artificial Life V: Proc. Fifth Inter. Conf. Synthesis and Simulation of Living Systems
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- Macedonia et al., *Npsnet: A network software architecture for large scale virtual environments*, Presence 3(4):256-287, 1994
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