Actors and Interaction

“Stories are about the most fascinating thing in the universe: people.”
– Chris Crawford

“People” Archetypes
• Hero
• Mentor
• Threshold Guardian
• Shadow
• Herald
• Trickster
• Shapeshifter
Lead Roles in Games

Heroes
Heroes

Tomb Raider Legends

Heroes (?)

Hitman

Friends of Heroes / Mentors

Half-Life 2
Heroes and their Enemies

Speaking of Enemies...

Threshold Guardians
The Ever-present but Intangible Shadow

System Shock 2

The Sympathetic Enemy / Shapeshifter

Lesser Actors
But Not Just Games
Tutors and Instructors

Interface Agents

Pedagogical Drama
Simulated People

Guide Characters

Historic Figures and Story Characters
Online Avatars

Making Them Act

Autonomy of Actors

Follow a Script  Make Decisions
Visible Action

- The chosen action of an actor manifests itself typically as visible behavior at some point.
- The behavior will be performed by an articulated body, typically human-like in appearance.
- The movements communicate the inner world of the actor.
- Any movement or lack of movement that is not consistent with that inner world, destroys the credibility of that actor.

But it’s very hard to control a visible body

- Over 230 joints
- Over 50 muscles in face
- And we never stop moving!

Humans control it with little effort

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But hard for computers and "players"

How do we make it easier?

The answer is a layered approach

Layered Control: Many Perception Action Loops
Body (physics)

- Knows its location and configuration
- Knows its limits
- Knows if it’s touching something
- Knows what’s perceivable
- Can balance itself

Example: I bumped into another person!

Motion (Dynamics)

- Knows what joints are needed
- Knows how joints can move
- Can maintain itself
- Can blend with other motions
- Can synchronize with environment

Example: Eyes track an object
Behavior (Performance)

- Knows what motions are needed
- Knows which motions are most important
- Knows if the behavior succeeded
- Can change if needed

Example: Point at instruments
Example: Nod the head

Intent (Cognition Level 1)

- Knows what behaviors help intent
- Knows what behaviors are permissible
- Knows the social context
- Can try something different if behavior fails

Example: Start conversation
Example: Reach the tower

Goal (Cognition Level 2)

- Knows what intent is most useful
- Knows intent of others
- Knows needs, desires, emotions, personality...
- Can evaluate progress towards goals

Example: Tell John about the lottery!
Example: Defeat the enemy
New Standard Interfaces

- Goal
- Intent
- Behavior
- Motion
- Body

Summary of layered approach

- **Intelligence** is spread across layers, with higher concentration at the top and lower concentration in the graphics hardware at the bottom.
- **Interfaces** between layers: As well as being the glue holding a character together, they provide
  - scripting opportunities
  - sharing of standard components (e.g. "engines")
  - different levels of control (e.g. Player vs. NPC)