Stance towards the player

- enemy
- ally
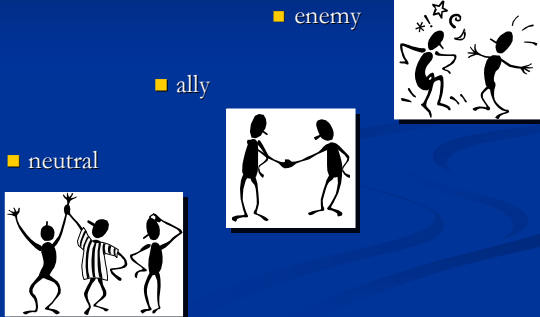- neutral

Enemy

- provides challenge
  - opponent
- must demonstrate intelligent (or at least purposeful) behaviour
- cheating
  - quick and dirty methods
  - when the human player cannot observe enemy's actions

Ally

- augmenting the user interface
  - hints and guides
- aiding the human player
  - reconnaissance officer
  - teammate, wingman
- should observe the human point of view
  - provide information in an accessible format
  - consistency of actions

Neutral

- commentator
  - highlighting events and providing background information
- camera director
  - choosing camera views, angles and cuts
- referee
  - judging the rule violations
- should observe the context and conventions

Multiplaying

- multiple human players sharing the same game
- methods:
  - divide the screen
  - divide the playtime
  - networking

All this and more in the follow-up course
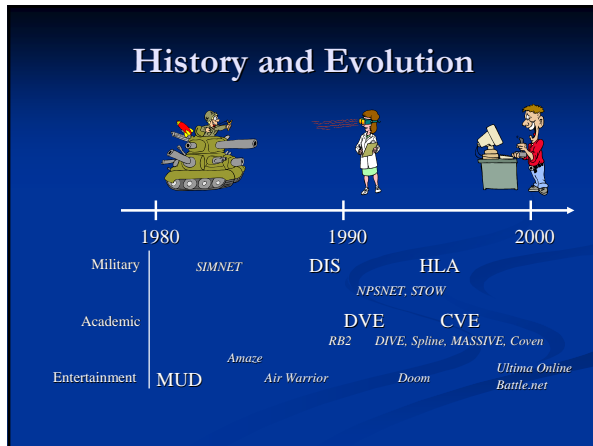*Multiplayer Computer Games*
starting November 1, 2005.

Interaction in a multiplayer game

Turn-based game

player 1
player 2
player 3
time

Real-time game

player 1
player 2
player 3
time

History and Evolution

	1980	1990	2000
Military	*SIMNET*	*DIS*	*HLA*
		NPSNET, STOW	
Academic		*DVE*	*CVE*
		RB2 *DIVE, Spline, MASSIVE, Coven*	
Entertainment	MUD	*Amaze* *Air Warrior* *Doom*	*Ultima Online Battle.net*

Location-based games: *ARQuake*

- augmented reality version of *Quake*: walk around in the real world and play *Quake* against virtual monsters
- components
  - head mounted display
  - mobile computer
  - head tracker
  - GPS system

Massive multiplayer online games

Name	Publisher	Released	Subscribers
Ultima Online	Origin Systems	1997	250,000
EverQuest	Sony Entertainment	1999	430,000
Asheron's Call	Microsoft	1999	N/A
Dark Age of Camelot	Sierra Studios	2001	250,000
Sims Online	Electronic Arts	2002	97,000
Star Wars Galaxies	LucasArts	2003	N/A

http://www.mmorpg.com

Games and story-telling

- traditional, linear story-telling
  - events remain from time to time (almost) unchangeable
  - books, theatre, cinema
  - participant (reader, watcher) is passive
- interactive story-telling
  - events change and adapt to the choices the participant makes
  - computer games
  - participant (player) is active

Let's tell a story

Characteristic features of story-telling 1(2)

- *contingency*: to what extent the time and space of the story depend on the real time and space?
- *narrative representation*: how the story is presented?
- *presence*: how far the watcher/participant shares the time and space of the story?
- *interactivity*: how much the watcher/participant takes part in the story process?

Aylett & Louchart: "Towards a Narrative Theory of Virtual Reality", *Virtual Reality* 7(1):2-9, 2003.

Characteristic features of story-telling 2(2)

	Cinema	Theatre	Literature	Games
Contingency	little	moderate	little	strong
Narrative representation	visual	visual	mental	visual
Presence	non-physical	physical	non-physical	non-physical, immersive
Interactivity	no	no/yes	no	yes

A story is always told to human beings

- story-telling is not about actions but reasons for actions
  - humans use a story (i.e., a narrative) to understand intentional behaviour
  - how can we model and generate this?
- story-telling is about humans
  - humans humanize the characters' behaviour and understand the story through themselves
  - how can we model and generate this?
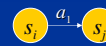

Levels of interaction 1(2)

- plot
  - varies according to the decisions the player makes
    - linear: the player advances via fixed plot-points
    - branching: the player chooses the continuation in a plot-point
    - parallel paths: the player can make choices between fixed plot-points
    - threaded: the player can choose among parallel and interconnected plots
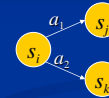

Plot progression as a graph

Linear

$s_i \xrightarrow{a_1} s_j$

Branching

$s_i \xrightarrow{a_1} s_j$
$s_i \xrightarrow{a_2} s_k$

Conjoining

$s_i \xrightarrow{a_1} s_j$
$s_i \xrightarrow{a_3} $
$s_i \xrightarrow{a_4} s_n$, a_2

Unfolding

$s_i \xrightarrow{a_1} s_j$
$s_i \xrightarrow{a_2} s_k$
$s_i \xrightarrow{a_3} s_l$
$s_i \xrightarrow{a_4} s_m$

Levels of interaction 2(2)

- characters
  - player's choices are reflected in the words and deeds of the character
- theme
  - player's choices are reflected in the theme of the story

Challenges for story-telling 1(2)

- themes
  - good plot and round characters are not enough to create a good narrative
  - there must be a theme behind it (e.g., betrayal, revenge, love)
- controlling the story
  - interactive drama can flatten and lose its interest
  - something has to make sure that the events stay dramatically compelling

Challenges for story-telling 2(2)

- strong, autonomous characters
  - characters must be personalities
  - stories are often remembered by personal characters
- personalization
  - if we want to the character to act intelligently towards the player, it must understand her
  - based on its own beliefs deduce other characters' and human's beliefs.

Other game design considerations

- customization
- tutorial
- profiles
- modification
- replaying

→ parameterization!