Semiotic Considerations
in an Artificial Intelligence-Based Art Practice

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Michael Mateas' research in AI-based art and entertainment combines science, engineering and design into an integrated practice that pushes the boundaries of the conceivable and possible in games and other interactive art forms.

He is currently a faculty member in the Computer Science department at UC Santa Cruz. Prior to Santa Cruz, Michael was a faculty member at The Georgia Institute of Technology, where he held a joint appointment in the College of Computing and the School of Literature, Communication and Culture, and founded the Experimental Game Lab.

With Andrew Stern, Michael released Façade, the world's first AI-based interactive drama in July 2005.

Michael's current research interests include game AI, particularly character and story AI, ambient intelligence supporting non-task-based social experiences, and dynamic game generation.
semiotics

- **Denotation**: a word that names or signifies something specific: “Wind” is the denotation for air in natural motion. “Poodle” is the denotation for a certain breed of dog.
- **Connotation**: the associated or secondary meaning of a word or expression in addition to its explicit or primary meaning: A possible connotation of “home” is “a place of warmth, comfort, and affection.”
- **Syntagmatic analysis** is analysis of syntax or surface structure.
- **Paradigmatic analysis** is the analysis of paradigms embedded in the text.
Expressive AI?

- Expressive AI is a new interdiscipline of AI-based cultural production, combining art practice and AI-research practice.

- Expressive AI provides a language for talking about “readable” behavior, that is, behavior that a player can read meaning into.
summary

- The essence of the computer as a representational medium is computation, processes of mechanical manipulation to which observers can ascribe meaning.
- Any art intervention can be viewed as the manipulation and modification of a network of flows (flows of signification, matter, and energy).
- Interpretation of the computational material by a human observer is crucial to the definition of intelligent system.
- The doubled (computational and semiotic) internal structure of system must allow an artist to predict the external interpretations an audience will make of the completed work.
- Building an AI-based work means constructing a semiotic system of implementation.
- A program code is a signifier signifying the mental concept of the effect of executing the code.
summary

- Two semiotic systems:
  system1 - the sign system defined by the architecture - artist - code
  system2 - the running work - audience - rhetoric

- For the audience, the sign produced by system 2 have an interpretive surplus which occurs because system 2 operationalizes a meta-language for describing the audience experience.

- For the artist, the sign of system1 have an interpretive surplus (architectural surplus.) The movement, from code system, into ordinary language, and back into code system, creates a circulation of signs that suggests both new ways of using the architecture and new architectural elaborations.

- Feedback loop between authorial intention and the detail of total system
- the code system relationships + rich rhetorical frameworks = interactive audience experiences
Terminal Time

- The Terminal Time Artificial Intelligence architecture is based on 3 major components: knowledge base, ideological goal trees, and story experts. The knowledge base is a vast knowledge web.
- "Terminal Time" is a history "engine" that instantly responds to the biases and desires of the viewers. The audience is invited to manipulate a kaleidoscope of possible histories, spanning the years 1000 to 2000 AD, and participate in the creation of thousands of custom-made cinematic stories.
The OZ Project

- Figure 1 shows the Oz system architecture. The architecture includes a simulated physical world, several characters, an interactor, a theory of presentation, and a drama manager. A model of each character's body and of the interactor's body are in the physical world. Outside the physical world, a model of mind controls each character's actions. The interactor's actions are controlled by the interactor. Sensory information is passed from the physical world to the interactor through an interface controlled by a theory of presentation. As shown, the drama manager influences the characters' minds, the physical world, and the presentation theory.
Pacade

• http://www.interactivestory.net/

• “My work is in Artificial Intelligence (AI)-based art and entertainment (Expressive AI). The fundamental research question in expressive AI is resolving the tension between autonomy on the part of the AI system and human authorship. I build AI architectures, in the context of interactive art and entertainment, that simultaneously allow human artists to craft the experience while providing autonomous, generative and dynamic response to interaction. By viewing AI as an expressive medium, my work raises and answers novel AI research questions while pushing the boundaries of the conceivable and possible in interactive art. A major thrust of my research is Interactive Drama. Façade, a collaboration with Andrew Stern, provides a good demonstration of interactive drama, showing how novel approaches to character AI, story AI (drama management) and natural language processing can be brought together to create a dramatically compressed, intense, first-person experience.”
Let’s talk about..

- Interactive story and audience (participant)
- Art making and game
- Interactive art