1. Problem: Where is the Performer's Craft in Computational Media?

The majority of interactive narrative research for games has been to provide story authoring tools rather than tools for embodied performers to represent their craft in computational media.

- **Agent research for interactive narrative** has incorporated dramatic theory (Winter, 2004; Bod Ykel, 2004; Tenenbaum, 2009, Paris, 1986), as literary performance (Laure, 1991; Murray, 1994; Asadi, 1992; Searle, 1980), to develop a Neo-Aristotelian Poetics of Interactive drama.
- **Micro-agent work** has been done on modeling improvisational performers from Theatre Arts (Magentor, 2010), but their designs did not incorporate embodied gestures.
- **Research** has been done on modeling the gestures of professional performers for enhancing the personality of embodied conversational agents (Neff, 2008), but not professional performers in the arts.

Avatar, Non-Player Characters (NPCs), and Intelligent Virtual Agents (IVAs), function primarily as conversational agents, with gestures being support to speech acts that drive the narrative. Little work has been done to model the gesture of performance artists to enhance the dramatic quality of embodied agents.

Agent development in games is in stark contrast to how drama developed in both classical live theatre and moving pictures, where gestural performance preceded speech acts, and physical spectacle dominated textual narrative.

- **When cinema started**, the camera was the entry point for professional performers to migrate out of the proscenium and onto the screen.
- **Actors digitized their 3D gestures into animated 2D representations**, where the characters could repeat the original performance if need be, even after the death of the performer.
- **Multiple takes, editing, and visual effects altered performance to iteratively improve their linear performances for audiences.**

The dramatic personas created by media icons of the last century indicate a development path for Performative Embodied Agents (PEAs) in New Media today.

Interactive drama has the potential to extend the performer's craft further than all previous acting mediums, but due to a technological divide, actors have been prevented from playing on the next stage.

2. Imagining the Ideal Performer: From Uber-Marionette to Avatar Theatre

The absence of performing artists in today's interactive drama, and the potential solution to the problem as a type of performative embodied agent, was anticipated by theater practitioner Edward Gordon Craig (1872-1946) at the turn of the last century.

Craig, an influential British theorist working in Florence, advocated the rise of the Director-Designer as a vision of art in charge of all aspects of production, and in this role he faced character believability problems that led him to question the viability of the actor as an art medium.

- Craig particularly struggled with the unpredictable personalities of live actors in his productions, which he attributed to a fundamental problem of belief in the theatre. He conceptualized the perfect actor as one who had a single-minded belief in the ideal of the character. In the ideal Platonic sense, which would in turn make the audience believe in the characterization enough to have an emotional response (Craig, 1963).
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- He conceptualized the perfect actor as one who had a single-minded belief in the ideal Platonic sense, which would in turn make the audience believe in the characterization enough to have an emotional response (Craig, 1963).
- A former actor himself, Craig’s views on acting was influenced by Neo-classical ritual acting techniques from masked theatre and puppetry, which also moved him towards symbolic gesture, along with the stylized movement of actor Harry Irving and dancer Isadora Duncan, with the anti-realism of the Symbolist (Aust-Clauses, 1987).
- His innovative productions were larger than life spectacles of moving lights and set pieces, which he intended as a new type of immersive Kinetic Stage.
- Designing an immersive theatrical experience was critical to him, and the thing Craig could not control was the actors, who he found did not have the discipline required to reliably portray his symbolic characterizations.

In 1907 Craig self-published his essay The Actor and The Uber-Marionette (The Mask Periodical 1907-1929), where he proposed a technological solution to his acting problem, proclaiming for the artistic future of the theatre, the live actor should be replaced by an autonomous puppet he called the Uber-Marionette (Craig). In his essay, Craig compared acting to other art forms, and found it came up short. His main complaint was against the live actor as a performing medium.

- **When playing In front of an audience actors allowed their mind get in the way of their characterization.**
- **Painters and musicians could abstract and refine their art forms with complete control, while actors relied on their own personality to carry a role, and so did not qualify as artists.**
- **His intimate solution was to remove the actor entirely from the audience, which did not go over well with the actors of his day.**

The Uber-Marionette concept was an extension of the mask-puppetry techniques Craig used to distance actors from the audience, entirely removing their form and personality, retaining their essence of gesture as an embodied performative representation in movement.

Technologically impossible in his lifetime, the author contends that Craig was actually proposing a vision of the ideal actor intended for a future performance medium not yet invented.

He said as much when he wrote, “If you can find in nature a new material, one which has never yet been used by man to give form to his thoughts, then you can say that you are on the high-road towards creating a new art. For you have found that by which you can create it. It only remains for you to begin. The Theatre, as I see it, has yet to find that material.” (Craig, 1907).

3. Performatology as Gesture Modeling: Getting the Performer In the Game

So how does the author’s Digital Arts MFA research apply to games and interactive drama? It is the proof-of-concept for a Performatology approach to designing PEAs at UCSC’s Computational Cinematics Studio (CCS).

- Using this approach the author is designing a novel performing agent architecture, IMPRISCUINA, which will use machine learning and motion capture to build a performer profile from a knowledge base of procedural gestures prototypes (Narrot, 2017).
- We are mapping a performative ontology from Performance Theory (Barthes, 2005; Schechner, 2002; Ashton, 1991), to analyze the apprentice training process used by performers when practicing their craft through mimicry and improvisation.
- Our PEAs architecture is intended as a performative component in a broader Nara-Performer-Ludic system design, and is the first step in a formal Performatology study of real and simulated embodied performers interacting together in a shared performance space.
- The author’s hypothesis is that the performer’s technique, developed over many years of disciplined training, results in a semiotic quality of gestures that is integral to portraying believable, expressive, and appealing fictive characters.

Puppetry and animation have shown that abstracting principles from live performers can simulate the illusion of life in moving images (Thomas, 1951, as seen in Disney’s Mickey, Disney’s Fantasia, and many other films, creating personas that persist in time-based media. Embodied agents have the potential to become interactive New Media icons if we can represent the performer’s craft as procedural algorithms.

Our goal is to get the professional performer in the game, and get the actor back on the stage of interactive drama.


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