

# Interactive Drama Authoring with Plot and Character: An Intelligent System that Fosters Creativity

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Storytelling is an integral part of the human experience. Stories are told to exchange information about relevant events and occurrences, to entertain, and to educate. Fictional narratives are artifacts that are deliberately created to achieve some desired effect on an audience. The process of creating fictional narratives is one that requires a degree of skill, practical experience, and creativity. In this paper, we will describe an AI mixed-initiative approach to authoring interactive dramas for entertainment and education.

Computer-based systems for crafting interactive drama allow people to participate actively in the crafting of a story (a) by playing a character in a dynamically unfolding world populated by computer-controlled characters, or (b) by exerting directorial control over events in the world populated by computer-controlled characters. The result is a mixed-initiative process in which an intelligent computer system and a human user influence how the story unfolds, and thus determine the final story structure. To create intelligent systems that can act as partners to humans in creative construction of interactive stories, one must develop intelligent systems that are capable of demonstrating creativity and that can put that capability to use by stimulating the human user's creativity as well.

There are many theories of good story. In *Poetics*, Aristotle argued that character was subsidiary to action. A more contemporary view on character and action, as espoused by Lajos Egri, suggests that plot unfolds based on the characters, that characters can essentially 'plot their own story'. Correspondingly, various approaches have been explored for facilitating the author in creating computer-based interactive stories: story-centric and character-centric designs. Story-centric designs focus on the structure of the overall story in terms of plot arc. However, story-centric systems, by focusing on plot often do not sufficiently consider aspects of characters, such as goals, motivation, and personality that make them believable. Character-centric designs, on the other hand, emphasize the development of individually plausible, autonomously motivated characters under the assumption that coherent narrative and dramatic effect should ideally emerge from the characters' behaviors. However, it is often the case that well-structured or dramatically interesting

stories do not always emerge in character-centric approaches.

In this work, we are exploring the hypothesis that the computational process of creating a story can benefit from integrating both character-centric and story-centric approaches. We argue that this framework can ensure both character plausibility and well-formed story structure. Most importantly, we argue that it also fosters creativity in human authors by allowing them to design stories at different levels of abstraction – plot level and character level – and receive feedback from the system. Feedback takes the form of explanations for how characters behave in guided simulations, and explanations for unexpected occurrences, all of which can lead to quick modifications of story structure and character attributes or to unexpected new avenues.

Thespian is a multi-agent system for authoring and simulating interactive dramas. It adopts a character-centric approach; it simulates each virtual character with a decision-theoretic goal-driven agent. In this paper, we describe a new framework that uses a planner to lay out the skeleton of a plot structure that guides and influences character-centric emergence. Planners have been found to be competent story-centric approaches to story creation. In our framework, the author can interact with a planner to provide plot level guidance of the underlying Thespian multi-agent simulation. The author also interacts with Thespian virtual characters whose goals are fitted to the plot level plan of the story. This integration of planning and multi-agent system enables the author to operate at multiple levels of abstraction to easily create variations of a story that are well-structured – e.g., having desired dramatic and/or pedagogical effects – while receiving rich character-centric interaction and feedback from goal-based characters. Feedback from the system includes (a) ways to improve the story design, and (b) new avenues of exploration in plot and character space.

The theoretical motivations for our approach and details of the algorithms will be provided in the paper. A preliminary example of human user interaction with the authoring framework to create an interactive drama will be presented, followed by discussion and implications for future work in intelligent creative authoring systems.