

A Social Network Interface to an Interactive Narrative (Demonstration)

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ABSTRACT

Regular viewers of serial dramas tend to construct a model of the social relationships between characters as a main determinant for the narrative events that constitute each episode. We have developed a novel approach to interactive narrative in which this dependency is made explicit and can be used to control the generation of various episodes for a baseline drama. This is implemented in our demonstration system, *NetworkING* (social *Network* for *Interactive Narrative Generation*), which provides an interface that enables users to set the social relationships between virtual characters in order to create an episode of their choosing which they can watch as it is visualised as a 3D animation. The domain for the interactive narrative is a medical drama with a cast of virtual characters, such as doctors, nurses and patients. The use of the social network makes the relationships between characters visible and hence leads to the generation of narratives featuring *shenanigans* within the context of medical story lines.

Categories and Subject Descriptors

H5.1 [Multimedia Information Systems]: Artificial, Augmented and Virtual Realities

General Terms

Algorithms, Performance

Keywords

Interactive Storytelling, Narrative Modeling, Planning

1. INTRODUCTION

Story lines in serial television dramas are dominated by social relationships that are frequently in a constant process of dramatic change. Indeed these social relationships, and the situations that arise from them, are a key determinant for the narrative action that constitutes each episode. This motivated our work with *NetworkING* [3], a system that implements a novel mechanism for narrative generation: using the dependency between character relationships to control the generation of episodes of a medical drama.

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In the demonstration users will be given the opportunity to “create their own episode” by specifying the relationships between characters in the social network and then watching an episode which is generated and visualized in real-time using that social network. Due to the ubiquity of social networks this is an interaction mechanism that users are likely to be familiar with. Nevertheless it represents a novel form of interacting with a storytelling system and one which users should find compelling.

2. SYSTEM OVERVIEW

The *NetworkING* demonstration system enables a user to create their own episode of a medical drama (inspired by popular series such as *ER*, *House* and *Scrubs*). User involvement in the demo is via:

- Users can interact with the Social Network via the Visual Interface, as shown in part (1) of figure 1. This enables users to freely specify relationships between virtual characters. Users also use the interface to select a “theme” for their episode (e.g. romance or pressure of work).
- Users can also watch their episode of the medical drama – one that is generated “on-the-fly” based on the specification. This episode is visualized on a 3D stage using the Unreal[®] game engine (UDK) as shown in part (3) of figure 1.

2.1 Technical System Features

The technical solutions implemented in the *NetworkING* system are organized into the following components:

- The user interface features a graphical representation of the social network, as shown in figure 1, with characters as nodes, relationships as arcs and characters clustered according to their role. For ease of use graph drawing and layout is handled automatically using *GRAPHVIZ4NET* [1].
- The user episode is generated using a plan-based approach (an adaptation of *Metric-FF* [2] that uses the social network to control narrative generation [3]). The state of the social network is mapped into the planning domain model used by the planner, affecting both the selection of narrative actions and resulting situations that can occur in the narrative. The domain model that features in the demonstration system includes 10 doctors, 5 nurses, 3 patients and close to 100 narrative actions.
- The episode is visualized by a component that receives narrative actions from the generator and stages them in a 3D environment using *UnrealScript*. The notion of “Smithian” cues [4], such as lighting, music and camera angles, are used to enhance important narrative events. Virtual character di-

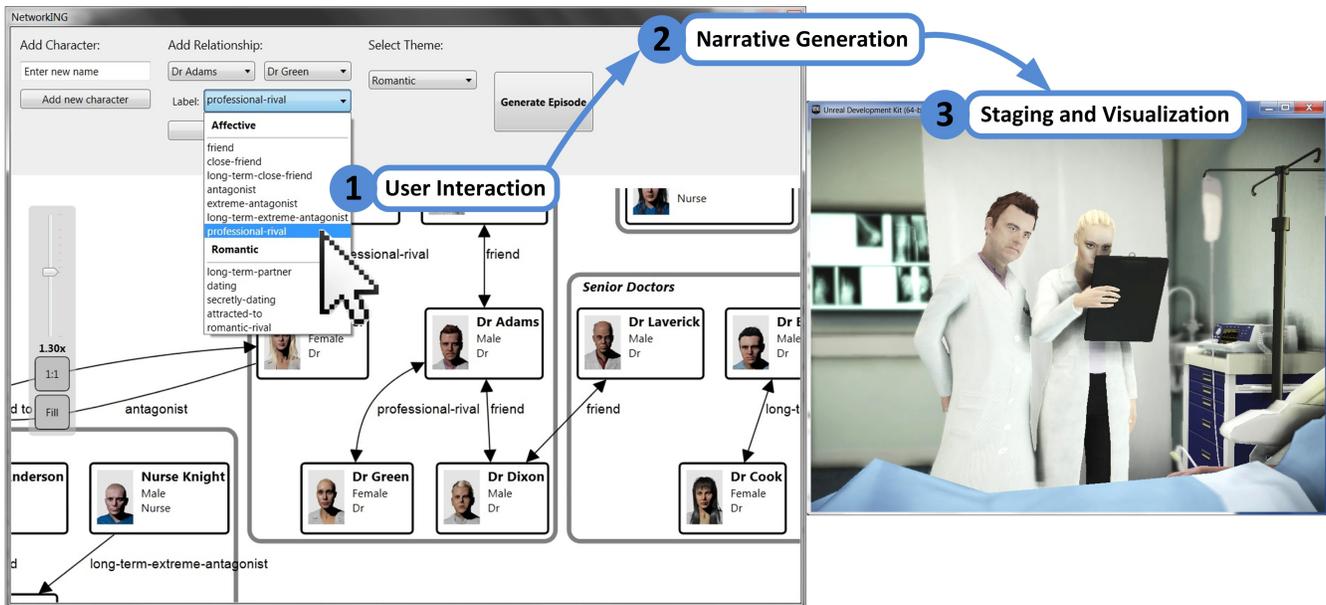


Figure 1: User Interaction in the NetworkingING Demo: (1) users make changes to the network (here a user is shown adding a relationship); the user can then generate an episode using the current state of the social network (2); and view a visualization of it as a 3D animation using the Unreal[®] game engine (3).

alogues are generated by the system at run-time and passed through a text-to-speech system that synchronizes spoken utterances with characters’ lip-synching.

3. USER INTERACTION CYCLE

User interaction with the system proceeds as shown in figure 1: first the user makes changes to the social network and then they can watch the visualization of “their” episode (a narrative generated on-the-fly using their input).

3.1 Interaction with the Social Network

The social network interface is shown in part (1) of Figure 1. Here the user is shown adding a relationship to the network (that Dr. Adams and Dr. Green are professional-rivals). This is achieved by selecting the characters of interest and the desired relationship label (shown with the large pointer toward the top of the figure). Once the user clicks on the “Add new relationship” button, the relationship arc is then added to the graphical representation of the network (as shown). If the user wishes to change an existing relationship then this is achieved by clicking on the relationship arc in the graph and then selecting a new relationship label from the menu (see [3] for the full classification of relationships).

3.2 Viewing of generated episode

In order to generate an episode the user first selects a narrative theme from a range of possibilities such as romantic, medical and so on. This selection is via the menu button, shown at the top of the figure. Then the user can select “Generate Episode” and a visualization of it will be shown to the audience of the demonstration (part (3) of the figure).

Since the episode can be viewed by more than just a single user, the visualization will highlight key dramatic events so that the types of relationships between characters can be clearly recognized by the demo audience at large. The

changes that the user has made to the social network impacts on the likelihood of different narrative events occurring. For example, if the user has set the relationship between characters to be antagonistic then the narrative is more likely to include confrontation between them, arguments, “ganging up” and so on.

4. SYSTEM PERFORMANCE

In the experiments reported in [3] run-time performance of the system was clearly demonstrated. The consequences of relatively small user changes to the social network were shown to have the potential to yield large changes across hundreds of narratives generated in our experiments.

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