MyDramatisFabrica : Using Ontologies for Directing Interactive Drama

M2R Internship proposal, October 2016

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Context

The general context for this Master's thesis is interactive drama – ie using 3-D computer graphics and 3-D animation for telling and showing stories [1,2,3]. One important requirement in such applications is to establish a relationship between named entities in the story (characters, objects, places and events) and objects in the 3-D scene (3-D meshes and 3-D animations) [4]. Establishing this relationship makes it possible to direct virtual actors in pseudo-natural language [5], which is a powerful and promising approach for interactive drama.

Objectives

In classical drama, the dramatis personæ (Latin: "persons or characters of the drama") is a phrase used to refer collectively, in the form of a list, to the main characters in a dramatic work. For the purpose of this internship, we generalize the concept to all elements of the drama, including places, objects and events.

Following a methodology previously developed for teaching human anatomy [6], the goal of the internship will be to build an ontology for the generalized dramatis personae of a story and a prototype system for classifying characters, places, objects and events in a 3-D scene according to the proposed ontology. Emphasis will be placed on a suitable representation for action [7,8] in order to make it possible to generate 3D animation from annotated play-scripts.

References

[1] Michael Mateas. 1999. An Oz-centric review of interactive drama and believable agents. In Artificial intelligence today, Michael J. Wooldridge and Manuela Veloso (Eds.). Lecture Notes In Computer Science, Vol. 1600.

[2] Brian Magerko: Story Representation and Interactive Drama. AIIDE 2005.

[3] Nicolas Szilas, Jason Barles, and Manolya Kavakli. 2007. An implementation of real-time 3D interactive drama. ACM Magazine on Computers in Entertainment, January 2007.

[4] Kaveh Hassani and Won-Sook Lee. 2016. Visualizing Natural Language Descriptions: A Survey.*ACM Comput. Surv.* 49, 1, Article 17 (June 2016).

[5] Z. Wang and M. van de Panne. 2006. Walk to here: a voice driven animation system. In Proceedings of the 2006 ACM SIGGRAPH/Eurographics symposium on Computer animation (SCA '06).

[6] Olivier Palombi, Federico Ulliana, Valentin Favier, Jean-Claude Léon, Marie-Christine Rousset. My Corporis Fabrica: an ontology-based tool for reasoning and querying on complex anatomical models. Journal of Biomedical Semantics, BioMed Central, 2014, 5 (1), pp.20.

[7] Arnd Vitzthum, Heni Ben Amor, Guido Heumer, and Bernhard Jung, XSAMPL3D: An Action Description Language for the Animation of Virtual Characters. JVRB - Journal of Virtual Reality and Broadcasting, Sept. 2012.

[8] Isabel Machado, Paul Brna, Ana Paiva. 1, 2, 3 .... Action! Directing Real Actors and Virtual Characters. Technologies for Interactive Digital Storytelling and Entertainment, Volume 3105 of the series Lecture Notes in Computer Science pp 36-41, TIPSE 2004.