

Pablo Gervás, “Intelligent Systems and Literature: from Artificial Storytelling to Artificial Reading”

Abstract: From the very beginning of Artificial Intelligence in the 50s there have been attempts to build programs that generate stories. In literature, Roald Dahl's short story "The Great Automatic Grammatizator" (1954) described a machine that could be driven to generate a novel, but early efforts in computer science focused on much simpler stories (TALESPIN system, Meehan, 1977; Minstrel system, Turner, 1993). These efforts were mostly driven by the observed properties of the story as a product. Progress since then has led to advances in several fronts, notably in the realm of interactive fiction and video games, where systems create story increments in response to user actions during interactive sessions rather than full stories. In support of this type of system work developed on modelling elements known to be relevant to story quality, such as character believability (Fabulist system, Riedl, 2010) and conflict (Ware, 2014). Efforts to connect these new genres to traditional literature progressively modelled character emotions (EmoEmma system based on Madame Bovary, Charles et al, 2009) and point of view (interactive narration modelled on The Merchant of Venice, Porteous et al, 2010). More recent efforts have begun to consider -- still in a tentative fashion -- some elements arising from the additional complexity implied by larger texts, such as changes in focalization (Gervás, 2014), suspense (Cheong & Young, 2015; Fendt & Young, 2017), multi-plot stories (Fay, 2014; Porteous et al, 2016; Gervás, 2020) and embedded narratives (Gervás, 2021). The consideration of these elements imposed a shift of focus towards modelling the dynamics of the reader's reaction to the content of text. Understandably, this has led to efforts to model the response of the reader, intended to inform the processes of generation. After all, if the text to be constructed has to produce a particular impact on the reader, then the corresponding creative process needs to be able to predict in some way what the reader's response may be to the different possibilities it is considering. These are, in truth, computational models of reading. The proposed talk will review the progress across these various stages of modelling literary creation in computational terms, highlighting relevant examples of intelligent systems of each type and discussing the processes and tasks that have been identified as relevant to achieving acceptable outcomes. The computational description of these tasks and processes are likely to be relevant to consideration of literature as an intelligent system.

Pablo Gervás holds a PhD in Computing from Imperial College, University of London (1995), and he is currently full professor on computational creativity and natural language processing (Catedrático de Universidad) at Universidad Complutense de Madrid. He is the director of the NIL research group (nil.fdi.ucm.es) and for many years was the director of the Instituto de Tecnología del Conocimiento (Knowledge Technology Institute, a research institute of the Universidad Complutense, <http://www.ucm.es/itc>). He has been the national coordinator of the FP7 EU projects PROSECCO – scientific exploration of computational creativity –, WHIM -- plot generation and automated composition of narrative – and ConCreTe – creative description of computer generated concepts in the area of Computational Creativity. He has been coordinator for two national research projects (GALANTE – generation of emotional text – and MILES - semantics of time and space for generating narrative) involving several institutions and principal investigator for two more (IDiLyCo – digital technologies for inclusive communication – and CANTOR – automated composition of narratives to support reminiscence-based occupational therapy). His main research interest currently lies in the study of potential synergies between literature and digital technologies. Professor Gervás is one of the world's leading experts on automatic generation of (fictional) stories and poetry, and has a background in natural language generation and computational creativity. He is the author of the PropperWryter software, which was used in the process of creating *Beyond the Fence*, the first computer generated musical, staged at the London West End in 2016.