Stories as Anticipatory Models

Dr Claire Craig (Royal Society, UK) and Dr Sarah Dillon (University of Cambridge)

This paper explores the role of stories as anticipatory models in relation to artificial intelligence. It proposes six functions of stories and explores each function in relation to how it pertains to anticipation and AI, in particular within the context of public discourse and decision-making about AI technologies. The paper argues both that stories are anticipatory models, and that listening to stories is a specific mode of anticipation.

Function 1: Communication

From Plato to Aristotle to Shakespeare to Stendhal, stories have been conceptualised as mimetic, that is, they represent reality. As such, stories function as a form of communication, conveying information about the world between social actors in it. Scientists have not traditionally considered themselves to be storytellers, but are increasingly aware that they are. In practice, in most cases when telling stories about the science, they appear to be aiming to communicate knowledge, including knowledge about, or which has implications for, the future. Some scientists, in their communication mode, use stories signalled as fiction to illustrate and so communicate the implications of the science.We will examine the anticipatory function of communicative stories around AI from Demis Hassabis' public stories about the potential of AI, to the use of fiction as part of AI communication (e.g. in Illah Reza Nourbakhsh's *Robot Futures*) to the extended use of fiction (e.g. *The Turing Option*, Marvin Minsky's collaboration with SF novelist Harry Harrison).

Function 2. Individual and collective identity formation

Through the development of a life story, individuals establish for themselves and others their present identity and their projected identity in the future. Stories and storytelling also function to define collective identities, for instance that of the family, or of a class group. Because the definition of AI includes within it challenging notions of identity, both for the AI system(s) and for the humans engaging with it, anticipatory stories that explore identities abound. We will examine fictional anticipations of the consequences of AI advances for conceptions of human individual and collective identity. We will also explore how stories function to create a collective identity for AI researchers.

Function 3: Exercise of empathy and theory of mind

Commentators of many kinds sometimes assume that a function of stories is to enhance the ability to imagine what it might be like to be someone other than oneself. However the evidence so far proves only a correlation between theory of mind and reading fiction. In anticipatory mode, the business of using stories to explore the potential future states of mind of others is essential to achieving a fuller account of potential futures. This is the rich version of stories as "thought experiment": not just "what happens if..." but "what will others feel like if this happens". Such stories enable anticipatory access to the emotional implications of AI technologies, either in a near-realistic mode or in an extreme mode (utopia or dystopia). We will also explore how stories of the impact AI is having, particular in relation to bias, racism and misogyny, could encourage AI researchers to anticipate the social implications of the technologies they are creating.

Function 4: The development, repository, and transmission of social knowledge

Stories make humans more expert in social situations, speeding up their capacity to process patterns of social information, to make inferences from other minds and from situations fraught with difficult or subtle choices. Thus social knowledge anticipating the near term implications of AI is passed around kin and friendship groups by anecdotal stories on topics from how consumer prediction algorithms work to the scale of and responses to identity theft, spreads around social groups through casual inclusion in mainstream realistic fiction, and filters into the general populations through news stories.

Function 5: Simulation and modelling for decision-making

Like models, stories enable people to understand the social world through an ostensibly contradictory combination of complexity and abstraction. If the reality under consideration is too complex and uncertain to be modelled quantitatively or in any other way, the question of whether it is possible to tell a plausible and satisfying story about future states of that reality appears to be a way of identifying options that can then be filtered for the purposes of decision-making. Stories as models or simulations can function in this way in relation to the future of AI and society. Stories as models or based on other types of models, operating in the third functional mode, also enable the reader to gain empathetic insights into the consequences of that future for themselves or for others and therefore some sense of its intuitive desirability (or attractiveness).

Function 6: Persuasion

Stories are sometimes weapons of mass persuasion. The fear about persuasive stories is that the discussion has moved away from the representative and arrived at the manipulative and distortive. At that point, stories could not be more far removed from empiricism, from accuracy and from truth. Stories can also persuade in the sense of inspiring and motivating readers. We will explore the difference between a story functioning as a form of persuasion towards a distorted anticipation of AI, and one operating to widen the models being considered, or associated with empathy for the other; a difference that may lie in the motivation of the storyteller and the context of the storytelling.

Listening to stories

Because stories perform several functions, and there are many stories, the task of determining what functions they are performing in any given area of anticipation is hard. It may be for this reason that it is commonplace in some contexts either to dismiss them or to operate under the spell of the most powerful stories without sufficient individual or collective self-awareness. However, we propose that new forms of anticipation will require the capability of learning from listening to stories.