Collaborative Storytelling with ML/AI

Principal Goal: To design and implement a system for a Human-Computer collaborative generation of a story based on ML/AI, using images and/or text

This project has been proposed by Aurora Constantin (Aurora.Constantin@ed.ac.uk). You are currently interested in being a supervisor for this project.

There is now a significant body of Machine Learning work for the captivation of one or a set of images, and the generation of stories by AI. This project aims to explore the use of these and other Artificial Intelligence (AI) or Machine Learning (ML) techniques for collaborative storytelling between a Human (or more) and a computer. Its main outcome is intended to be a prototype of a system that will attempt such a collaboration. For example, the system could help parents or practitioners working with children with Autism Spectrum Conditions (ASC) to design short stories with a specific style and format that describe a situation, a social skill or a concept in a meaningful way for individuals with ASC. You may want to develop this idea starting from the previous work.

Another example: the system could help children’s narrative development based on the Poppy’s morphology - a model of narrative for a child’s story authoring tool, with the potential to give children a powerful mental model with which to construct stories. To get more inspiration in this sense you may want to start from the work described in [6] and [7]. However, there is no hard limit on what can be explored. The student is encouraged to be creative. They can build the system from scratch or improve existing systems.

There is a lot of work out there for generating text or images, but some good starting points are:

**Text to Image**
- “Tell, Draw, and Repeat” [14].

**Image to Text**
- There is a lot of work out there for generating text or images, but some good starting points are:
  - Let Your Photos Talk [8]
  - A story authoring tool, with the potential to give children a powerful mental model with which to construct stories [5]. To get more inspiration in this sense you may want to develop this idea starting from the previous work [4].

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**Resources Required**

- User studies may require Ethical Approval.
- Essential Skills: Experience in user studies and Desirable Skills: Popularity 27 students are interested in this project.

**Essential Skills**

Programming (Python), Deep Learning, Machine Learning, having taken “Human-Computer Interaction” course or taking “The Human Factor: Working with Users” course

**Ethical Considerations**

User studies may require Ethical Approval.