

On Shape Poems and the Shape of Poems

A Computational Creativity Perspective

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The Painting Fool is a computer program that we hope will one day be taken seriously as a creative artist in its own right. It has been developed within a Computational Creativity paradigm to exhibit behaviours which could be called skilful, appreciative and imaginative. At its heart is a two stage process of constructing a representative scene consisting of a set of coloured shapes and then simulating artistic media and techniques in rendering the shapes into a painting.

For scene generation, we have employed various graphics, machine vision and artificial intelligence techniques in order to simulate imaginative visualisation. These techniques include image segmentation, image filtering, emotion detection, constraint solving, context free grammars and machine learning. The methods are combined using a layering approach whereby shapes from one layer can be substituted by others in various ways.

When rendering an image, the software simulates the usage of a tool such as a pencil, pastel, crayon or paintbrush applying pigments to a medium such as a sheet of paper or a canvas. It has the ability to trace the outline of shapes and fill shapes in various ways. It paints in layers and can change the style in the layers at the shape level and the painting level to simulate the production of multimedia pieces.

We have written papers and given exhibitions which raise some philosophical issues related to the building of autonomously creative software. These include how to simulate imagination, emotional response and intentionality in software, the value of programs framing their output, how to evaluate the creativity of software, and what it means to hand over creative responsibility to a machine.

We have recently given The Painting Fool abilities to generate text artefacts such as poems and commentaries. Two example poems from a recent paper are given in figure 2, with the latter given with an automatically generated commentary about how it was produced. The first is clearly in a poetic form, while the latter has less strict shape as a poem.

In other work, we have enabled the software to take any font and plot paths through the centre of each letter shape, so that they can be drawn using the simulated pencils, pastels and paints available. This has allowed the usage of text in the paintings that The Painting Fool produces, and for the (future) production of multimedia pieces such as illustrated poems and collages.

In our most recent work, we have enabled word wrapping so that text can be fitted into an arbitrary shape produced by the software, or dictated by a user as per the shapes in this paper. This is done in a two step process whereby the size of the font is first searched for then the best arrangement of the words at that size is searched for.

The new abilities have led to the production of new pieces of art, as portrayed in figures 2 to 6. These include visual artworks where a shape is picked out by text and where a series of text shapes is used to depict something representational such as a portrait. The Painting Fool can now also produce shape poems, where the shape of the text somehow represents the subject material.

These new projects which combine text and shape for visual art and poetic purposes have highlighted a number of higher level issues in Computational Creativity. These include programming imperfection (the productive use of bugs), the latent heat issue (handing over creative responsibility often leads to lower quality artefacts being produced) and the benefit of getting software to frame its work with commentaries, titles and other texts.

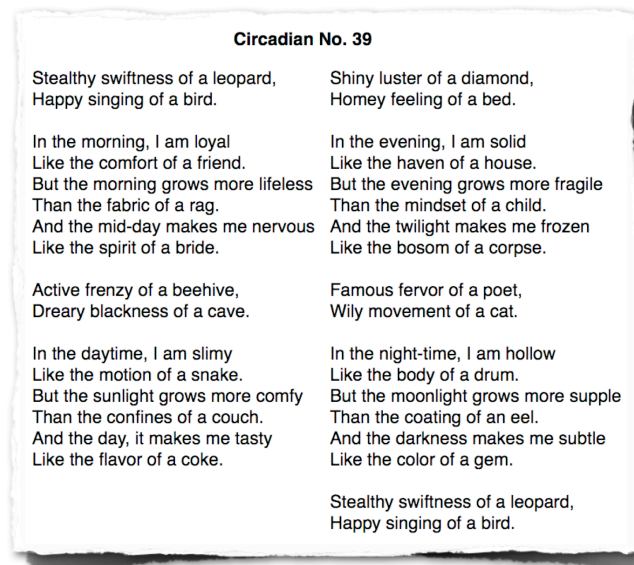


Figure 1. Two poems produced by The Painting Fool.

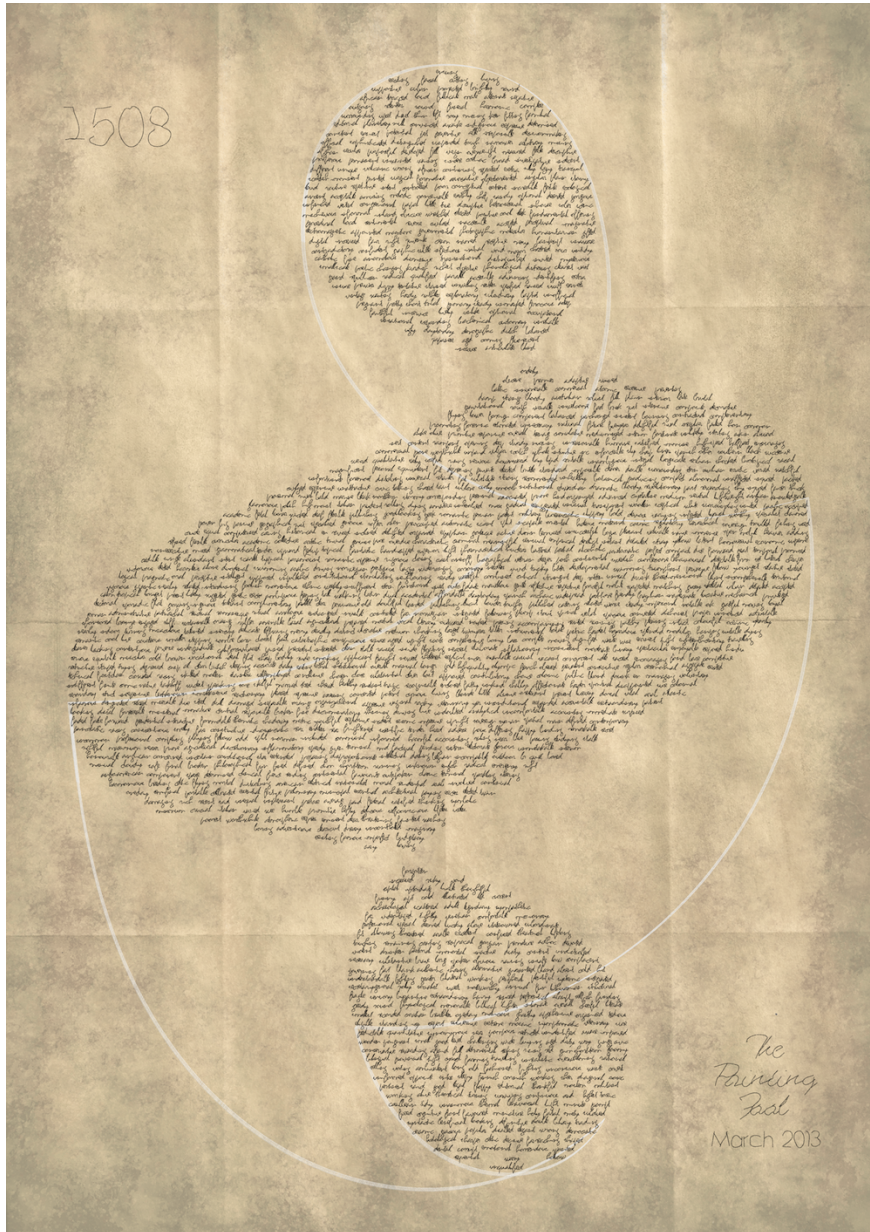


Figure 2. Artwork produced by The Painting Fool where an individual shape is highlighted by text.

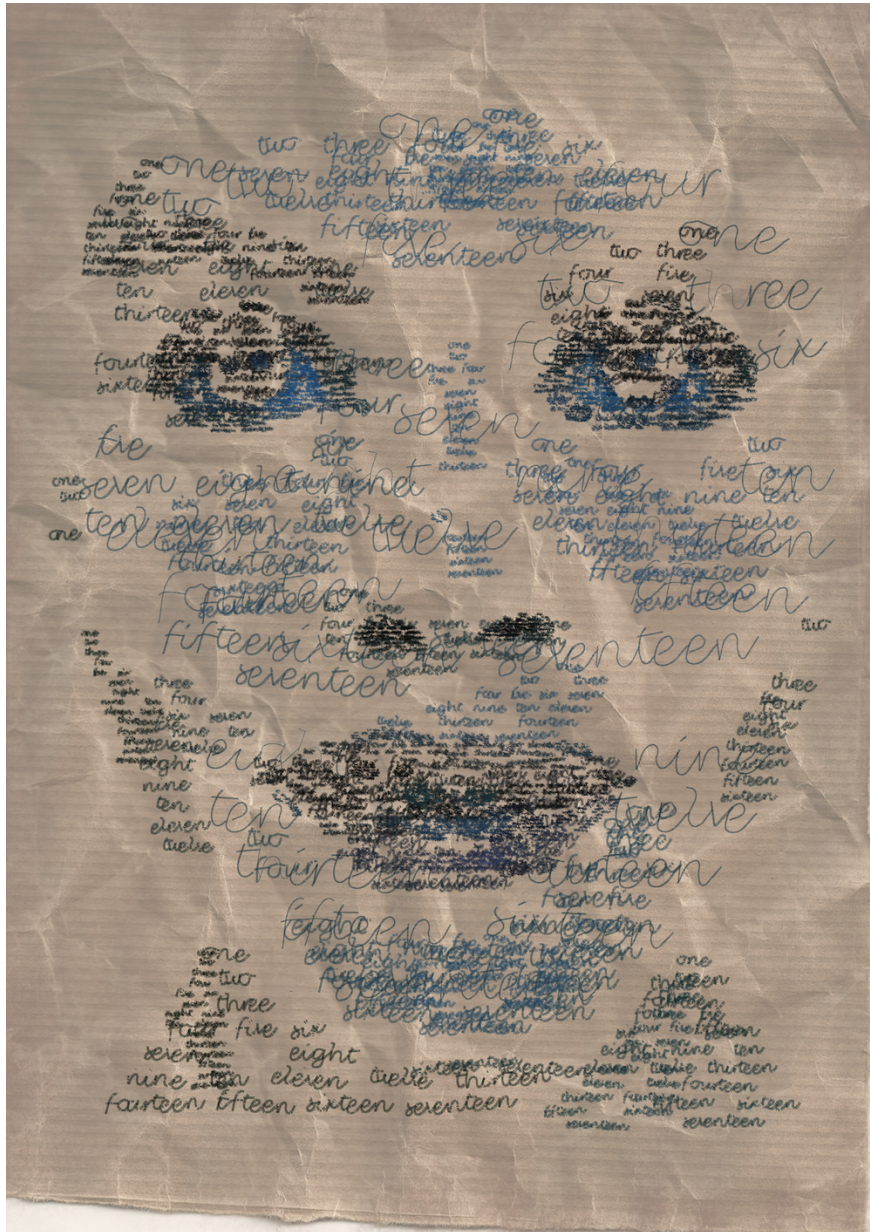


Figure 3. Artwork produced by The Painting Fool with a set of text shapes producing a portrait.

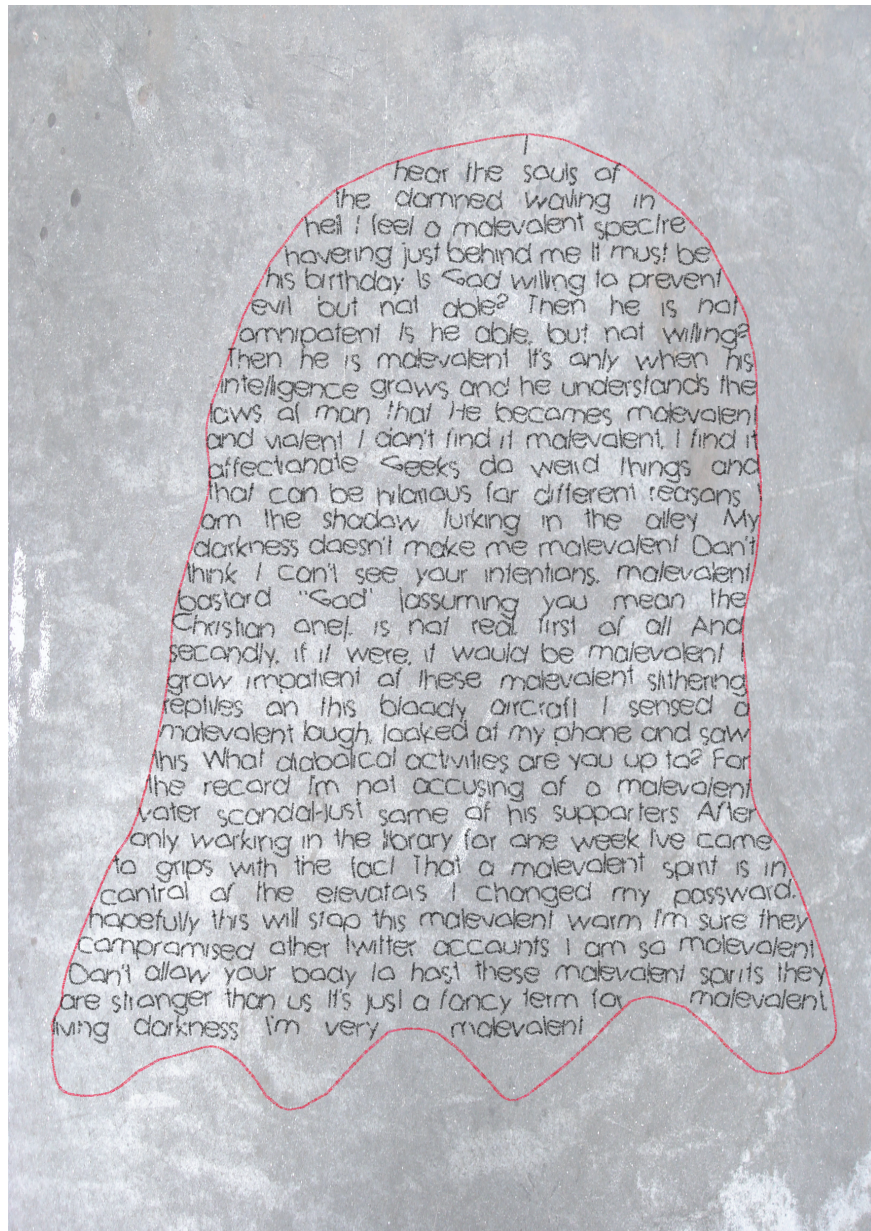


Figure 4. The Malevolent Ghost shape poem by The Painting Fool. Sentences from Twitter.