Automatically Generating Animations From Escher's Images, 2014

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The tessellating, morphing images created by M.C. Escher (1898-1972) have long fascinated artists and scientists alike. The mathematically complex symmetries in works such as Metamorphosis III (1967) combine beautiful aesthetics with a deep understanding of repetition and structure.

Using a digital scan of Metamorphosis III, this work presents an interactive tool for exploring visual patterns present in two-dimensional images. The custom software, inspired by the movement of the human eye, automatically transforms parts of Metamorphosis III into an animated sequence that unfolds in time.

The image processing algorithm underlying this transformation is designed to find regions of visual similarity in an image. Visitors choose a portion of Metamorphosis III, and the software calculates a "path" through visually-similar regions in the image. The individual steps in this path are sequenced into an animation that is played back to the visitor.