Mehrdad:

One of the main questions in the humanities is how cultures and artistic expressions changes over time. While a number of researchers have used quantitative methods to study changes in literature, music, and cinema, so far no one has applied computational techniques to analyze temporal development in any form of visual art. We propose a number of computational methods, including a novel method inspired by the distance correlation, for the analysis of temporal changes in artworks suitable for large datasets. We apply our techniques to a collection of 270,000 artworks created between 2000 and 2010 by users of the most well-known social network for non-professional art - DeviantArt. We compare artworks in two top level categories - Traditional Art and Digital Art - to see how the use of digital tools has influenced content and form of visual artworks during 2000-2010 period. Our analysis reveals a number of gradual and systematic visual and semantic changes over ten year period. Somewhat unexpectedly, our data shows that color features change at a greater rate for Traditional Art than Digital Art. Furthermore, because these artworks are classified by the creators into two general categories - Traditional Art and Digital Art - we are also able to study how the use of digital tools has influenced content and form of visual artworks during 2000-2010 period.

Lev:

One of the main questions in the humanities is how cultures and artistic expressions change over time. While a number of researchers have used quantitative methods to study historical changes in literature, music, and cinema, our paper offers the first quantitative analysis of historical changes in visual art created by users of a social online network. We first propose a number of computational methods, including a novel technique inspired by the distance correlation, for the analysis of temporal development of art images. We then apply our techniques to a sample of 270,000 artworks made between 2000 and 2010 by users of the most well known social network for non-professional art – DeviantArt.com. We investigate changes in subjects, techniques, sizes, and also selected visual characteristics of images. Because these artworks are classified by their creators into two general categories - Traditional Art and Digital Art - we are also to investigate if the use of digital tools had a significant effect on the content and form of artworks. Our analysis reveals a number of gradual and systematic visual and semantic changes over a ten-year period in both categories. Unexpectedly, the results show during this period, Traditional Art category changed at a great rate than Digital Art category.