

The Scream (ca. 1910) through the Years: from Photographic Documentation to Digital Rejuvenation

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Digital rejuvenation [1] is the attempt to reconstruct the appearance of an artwork in the past, and it is of high interest for a wide range of stakeholders: art historians, conservators, museum curators, educators and the general public. Very often, rejuvenation approaches start from accurate color representations of the artwork based on spectrophotometric measurements of its current status [2], [3]. This is combined with knowledge about the constituent materials and their color change behaviour, which is usually assessed with accelerated aging experiments [3], [4].

In our work, we accessed the museum's archival records and selected historic film slides to restore the past colors of the painting *The Scream* (ca. 1910) by Edvard Munch. The challenge is that some of these photographs were themselves subject to degradation, as it is obvious with the one from 1971, where the cyan dye heavily faded. Fortunately, from prior investigations, we are aware of which areas in the painting are stable and have not changed during the last decades. From these areas, we extract anchor points to define a transformation from the colors of the slides to the actual colors of the painting. By solving this equality with least-squares, we obtain a color correction matrix for each film, which enables us to peek into the painting's past.



Figure 1. The analogue photographs of *The Scream* in 1971, 1989, 1993, and 2003 (in order from left to right).

Références

- [1] R. S. Berns *et al.*, “Rejuvenating the color palette of Georges Seurat’s *A Sunday on La Grande Jatte*—1884: A simulation,” *Color Research & Application*, vol. 31, no. 4, pp. 278–293, 2006, doi: 10.1002/col.20223.
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