

Dare to dream again: Reconstructing van Gogh's Field with Irises near Arles

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Video Abstract

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Abstract

Vincent van Gogh once compared this impressionist masterpiece to a “Japanese dream”—a reflection of his love for Japanese prints but perhaps a comparison that has proven all too fitting. Because the thing about dreams is, their details tend to fade. A combination of natural aging and the buildup of grime has dulled van Gogh’s *Field with Irises near Arles* over the past 130 years. Fortunately, those changes are not completely irreversible. Modern experimental art technology has given a team of Dutch researchers unprecedented access to the artist’s full color palette. Enabling them to not only digitally recreate van Gogh’s landscape in its original color—but also, to reproduce the very paints he used from scratch. Using the same techniques forensic scientists use to reconstruct a crime scene, the team first determined the chemical makeup of each dab of paint in the work. Thanks to van Gogh’s signature style of laying thick swatches of color, it was relatively easy to place some paints on the artist’s canvas. Emerald green in the foreground, chrome yellow in the buttercups, cobalt blue in the sky. But it would have been nearly impossible to—by eye alone—deconstruct every brush stroke into the colors van Gogh mixed on his palette. For that, the team turned to the same color-matching principles applied in car repair shops. Based on two measurable properties alone, the optical technique can output the mixture of hues that produces the color of a painted surface. The team was then left with the much simpler, if tedious, task of coloring by number, or by pixel, to reproduce van Gogh’s *Field*. To get the full effect, the team took to the workshop to recreate van Gogh’s paints, mixing different natural oil binders and pigments by hand according to recipes from the 19th century. They then submitted those real paints to the same optical measurements used to characterize the virtual paints. The result was a bona fide library of van Gogh’s color palette. The combination of their measurement data, color analyses and art history expertise allowed the researchers to see what the freshly painted canvas most probably looked like – digitally generated on a computer monitor. Because van Gogh was faithful to his palette throughout a good portion of his career, that library can likely be used to revive some of the artist’s other paintings—as well as those of his contemporaries. And with a career as prolific as van Gogh’s, that could mean the virtual restoration of a good many dreamscapes.