

A Duke Mathematics professor and her students have been working on a project with the North Carolina Museum of Art to display some 14th Century paintings as they would have been when new. They know how to simulate paint and how to (virtually) remove the cracks in the paint, but are not experienced in computer graphics and don't know how to render the gold leaf, so have asked us to participate.



TOP
The Resurrection of Drusiana, ca. 1370
 Tempera on wood, 13 1/2 x 14 1/2 in.
 (34.3 x 36.8 cm)
 Gift of the Samuel H. Kress Foundation
 61.32
 Portland Art Museum

TOP
*St. John the Evangelist Reproving
 the Philosopher Crato*, ca. 1370-80
 Tempera and gold leaf on panel
 14 x 16 1/4 in. (35.6 x 41.3 cm)
 Gift of the Samuel H. Kress Foundation
 GL.60.17.18
 North Carolina Museum of Art, Raleigh

The Crucifixion, ca. 1370
 Tempera on panel, 28 5/8 x 19 3/4 in. (72.7 x 50.3 cm)
 Mr. and Mrs. Martin A. Ryerson Collection, 1937.1006
 The Art Institute of Chicago
 Photography © The Art Institute of Chicago

TOP
*Saint John the Evangelist with Acteus
 and Eugenius*
 ca. 1370
 Tempera on wood, gold ground
 14 3/8 x 16 1/4 in. (36.5 x 41.3 cm)
 Gift of Mrs. W. Murray Crane, 1969
 69.280.2
 The Metropolitan Museum of Art

TOP
*Saint John the Evangelist Causes a
 Pagan Temple to Collapse*, ca. 1370
 Tempera on wood, gold ground
 14 1/8 x 15 1/4 in. (35.9 x 38.7 cm)
 Gift of Mrs. W. Murray Crane, 1969
 69.280.3
 The Metropolitan Museum of Art

BOTTOM
*Acteus and Eugenius Implore St. John
 the Evangelist to Restore Their Wealth*
 ca. 1370-80
 Tempera and gold leaf on panel
 13 3/4 x 15 in. (34.9 x 38.1 cm)
 Gift of the Samuel H. Kress Foundation
 GL.60.17.19
 North Carolina Museum of Art, Raleigh

BOTTOM
Saint John the Evangelist Raises Satheus to Life
 ca. 1370
 Tempera on wood, gold ground
 Overall 14 1/8 x 16 1/8 in. (35.9 x 41 cm);
 painted surface 13 3/4 x 15 1/2 in. (34.9 x 39.4 cm)
 Gift of Mrs. W. Murray Crane, 1969
 69.280.1
 The Metropolitan Museum of Art

BOTTOM
*St. John the Evangelist and
 the Poisoned Cup*, ca. 1370-8
 Tempera and gold leaf on panel
 13 7/8 x 15 3/16 in. (35.2 x 38.6 cm)
 Gift of the Samuel H. Kress Foundation
 GL.60.17.20
 North Carolina Museum of Art, Raleigh

The paintings came from an altarpiece in Italy (above) and are held by various museums around the country. One panel is missing, but has been recreated by an expert in period paints and Medieval art. The exhibition will bring together the original paintings and the new one. There will also be exhibits on the mathematical and computer-science techniques used.

This class project is to render an animation of the original paintings as they would have looked when new. Specifically, the gold leaf and the punched-in 3D detail (see the detail photos below, original left). Professor Lastra (lastra@unc.edu) will help with the rendering equations and techniques. The animations will be shown as part of the exhibition at the North Carolina Museum of Art. Of course, all participants in the project will be credited at the exhibition. There is also a possibility of some work over the summer.

