Department of Electrical and Computer Engineering
Research Seminar

When computers look at art: Image analysis in humanistic studies of the visual arts

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3:30 PM
Goergen 101

New computer methods have been used to shed light on a number of recent controversies in the study of art. For example, computer fractal analysis has been used in authentication studies of paintings attributed to Jackson Pollock recently discovered by Alex Matter. Computer wavelet analysis has been used for attribution of the contributors in Perugino's Holy Family. An international group of computer and image scientists is studying the brushstrokes in paintings by van Gogh for detecting forgeries. Sophisticated computer analysis of perspective, shading, color and form has shed light on David Hockney's bold claim that as early as 1420, Renaissance artists employed optical devices such as concave mirrors to project images onto their canvases. How do these computer methods work? What can computers reveal about images that even the best-trained connoisseurs, art historians and artist cannot? How much more powerful and revealing will these methods become? In short, how is computer image analysis changing our understanding of art? This profusely illustrate lecture for non-scientists will include works by Jackson Pollock, Vincent van Gogh, Jan van Eyck, Hans Memling, Lorenzo Lotto, and others. You may never see paintings the same way again.

Dr. David G. Stork is Chief Scientist of Ricoh Innovations and Consulting Professor at Stanford University, where he has held appointments, taught, and sat on dissertation committees frequently over the last 18 years in the departments of Computer Science, Electrical Engineering, Statistics, Psychology and Art and Art History. He has published in optics and art for over two decades, including ***Seeing the Light: Optics in nature, photography, color, vision and holography*** (Wiley), the leading textbook on optics in the arts. A graduate in physics of the Massachusetts Institute of Technology and the University of Maryland at College Park, he also studied art history at Wellesley College and was Artist-in-Residence through the New York State Council of the Arts. His anamorphic photographs and graphics (based on late Renaissance methods) have appeared in small art journals as well as *Optics and Photonics News* and *Scientific American*. He has taught courses such as "Light, color and visual phenomena," "The physics of aesthetics and perception," and "Optics, perspective and Renaissance painting" over the last quarter century variously at leading liberal arts and research universities such as Wellesley College, Swarthmore College, Clark University and Stanford University. He holds 37 US patents and has published numerous technical papers on human and machine learning and perception of patterns, physiological optics, image understanding, concurrency theory, theoretical mechanics, optics, image processing, as well as six books and proceedings volumes, including ***Pattern Classification*** (2nd ed.), the world's all-time best-selling textbook in the field, translated into three languages and used in courses in over 250 universites worldwide.

Co-sponsored by the Institute of Optics, the UR IEEE Student Branch, and by the Rochester Chapter of the IEEE Computer Society.

Refreshments will be served. Please bring your own coffee cup