



Enhancing Your Image

Inpainting is the age-old practice of restoring visual works—a process that until recently was only performed manually by experts. Many people now use computers to retouch digital photographs, yet the work can still be painstaking. A promising new field of mathematical research is the development of algorithms that solve partial differential equations to digitally inpaint with little input or effort from the user. The technique can also be used, as in the example below, to recover missing portions of transmitted images without requiring retransmission of the data.



Photographs courtesy of S. Rane and G. Sapiro



The **Mathematical Moments** program promotes appreciation and understanding of the role mathematics plays in science, nature, technology, and human culture.