Medical Image Analysis Facility To improve the quality of photos sent to Earth by unmanned spacecraft, NASA's Jet Propulsion Laboratory (JPL) developed a computerized image enhancement process that brings out detail not visible in the basic photo. JPL is now applying this technology to biomedical research in its Medical Image Analysis Facility, which employs computer enhancement techniques to analyze x-ray films of internal organs, such as the heart and lung.

A major objective is study of the effects of stress on persons with heart disease. In animal tests, computerized image processing is being used to study coronary artery lesions and the degree to which they reduce arterial blood flow when stress is applied. The photos illustrate the enhancement process. The upper picture is an x-ray photo in which the artery (dotted line) is barely discernible; in the post-enhancement photo at right, the whole artery and the lesions along its wall are clearly visible. The Medical Image Analysis Facility offers a faster means of studying the effects of complex coronary lesions in humans, and the research now being conducted on animals is expected to have important application to diagnosis and treatment of human coronary disease.

Other uses of the facility's image processing capability include analysis of muscle biopsy and pap smear specimens, and study of the microscopic structure of fibroprotein in the human lung. Working with JPL on experiments are NASA's Ames Research Center, the University of Southern California School of Medicine, and Rancho Los Amigos Hospital, Downey, California.