



Picturing Video

Video cameras have become so commonplace today, they often are used in place of still cameras. However, trying to generate a high quality still image from a frame of video footage has been no easy task until now. After completing a Phase I and Phase II NASA **Small Business Innovation Research (SBIR)** contract with Marshall Space Flight Center, Irvine Sensors Corporation created a subsidiary, Redhawk Vision, Inc., to commercialize the resulting technology.

Redhawk is now prepared to introduce Video Pics,TM a software program that generates high-quality photographs from video. Using Irvine Sensors' patented neural network technology originally developed for NASA and the U.S. Air Force, Video Pics takes information content from multiple frames of video and enhances the resolution of a selected frame of interest. The resulting images have the sharpness and clarity of 35mm camera photos and are generated as digital files compatible with image editing software.

The software uses a complex patent-pending algorithm to extract clear images from noisy, grainy video similar to the way the human brain "sees" video content. Video Pics removes jitter, noise, and compression artifacts, while increasing resolution so a shot can be re-framed and magni-

fied. Brightness can be adjusted without reducing image quality.

The NASA SBIR work was performed on technology known as Real-Time Self-Contained Image Compensation for Spaceborne Imaging Instruments (SIMC). The SIMC algorithm determines which direction the scene has moved and repositions it back to the original position. Redhawk believes its method is considerably faster and more flexible than traditional signal processing techniques. Video Pics will also salvage otherwise unusable video with its ability to zoom and motion stabilize video without any loss of detail.

Video Pics represents Irvine Sensors' first commercial application to stem from its Silicon Brain research, the company's initiative to develop a computer that thinks like a human brain. Redhawk's first product line will be targeted at video editing professionals and can be used in conjunction with Adobe and Apple[®] video editing software. Redhawk envisions bringing the technology to the average consumer to facilitate e-commerce photo finishing. James D. Evert, chairman and CEO of Redhawk Vision, believes, "[C]onsumers of all ages could use such a tool to extract photographs of interest from the estimated five trillion frames of video that are captured by camcorders each year."

Irvine Sensors, located in Costa Mesa, California, is engaged in the development of high density electronics, miniaturized sensors and sensor readout circuits, miniature cameras, optical interconnections, image processing software and devices, and low-power analog and mixed-signal integrated circuits for diverse systems applications. The company worked with NASA on previous SBIR contracts to develop a three-dimensional memory system.

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Video PicsTM allows users to turn video recordings into high-quality still photographs, with all the clarity of a 35mm camera.