



More Efficient Signal Processing for Digital and Smartphone Cameras

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WARF: P150100US01

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing image signal processors that can operate in a power-saving mode when appropriate.

Overview

Image signal processors (ISPs) are specialized circuits in cameras that help rapidly process image data. ISPs provide white balance, geometric correction and other functions that make an image suitable to the human eye.

More and more, the cameras in cell phones and other mobile devices are being used for purposes other than picture-taking. For example, the camera in a smartphone can be used for face and gesture recognition.

These new camera applications require ISPs to operate for extended periods of time and drain battery life.

The Invention

A UW-Madison researcher has developed ISP circuitry that can operate in two modes. One mode optimizes the signal for human vision and the other mode optimizes the signal for feature/gesture recognition. The latter mode uses less energy because the image can be of lower quality.

The new ISP design conserves power by not processing each pixel value, operating all processing stages or sampling every frame.

Applications

- Image processing in mobile/wearable devices
- Remote camera applications where battery life is important (e.g., surveillance)

Key Benefits

- Saves power without sacrificing accuracy
- Simple modification to traditional ISP design

Stage of Development

Simulations. The new design has been shown to cut energy usage by 96 percent.

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Related Technologies

- [WARF reference number P130132US01 describes a method to conserve device power by adjusting computing accuracy in run time.](#)



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Tech Fields

- [Information Technology : Computing methods, software & machine learning](#)
- [Information Technology : Hardware](#)

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