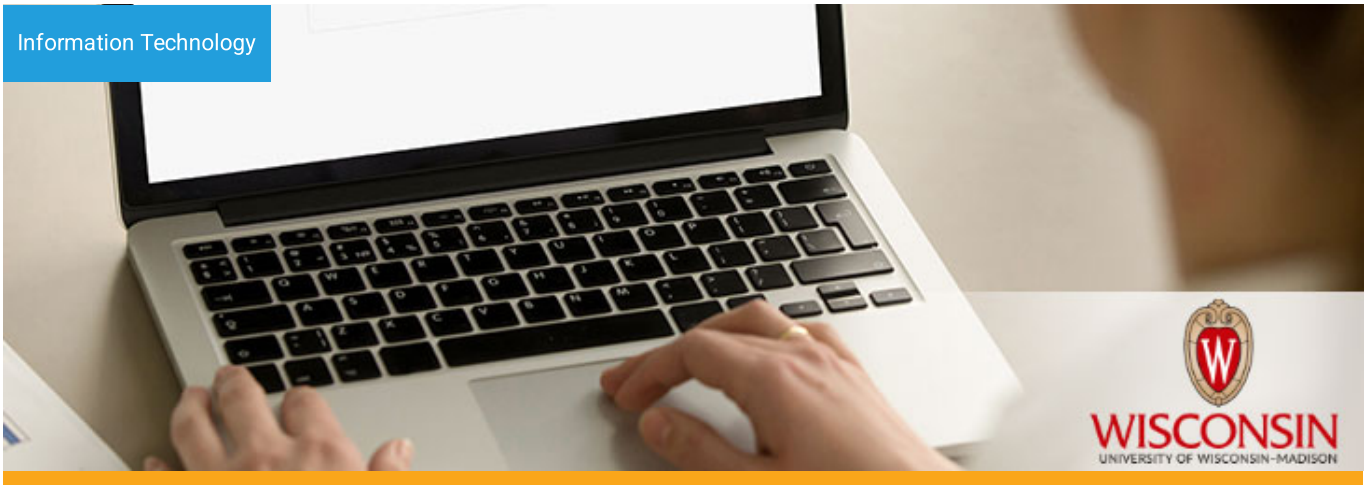
Information Technology



SYSTEMS, METHODS, AND MEDIA FOR HIGH DYNAMIC RANGE IMAGING USING SINGLE-PHOTON AND CONVENTIONAL IMAGE SENSOR DATA

View U.S. Patent No. 11,758,297 in PDF format.

WARF: P220091US01

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The Invention

UW researchers have developed a system for high dynamic range imaging using single-photon and conventional image sensor data. This uses a learning-based, sensor-fusion approach to achieve the extreme dynamic range imaging. The system comprises detectors, such as a SPAD array and CMOS camera, used to acquire the image data. The data includes high-resolution, low dynamic range (LDR) information from the CMOS camera, and low resolution, high dynamic range (HDR) information from a single-photon camera (SPC). The detectors are configured to detect a level of photons proportional to incident photon flux and to detect arrival of individual photons.

A neural network is used to encode information from both cameras and reconstruct a high-resolution image with extremely high dynamic range. The design uses two encoders that extract certain features from the image data so that when combined, the resulting images are better, not worse.

Additional Information

For More Information About the Inventors

- Mohit Gupta
- Andreas Velten

Tech Fields

- Information Technology : Computing methods, software & machine learning
- Information Technology : Image processing

For current licensing status, please contact Michael Carey at mcarey@warf.org or 608-960-9867