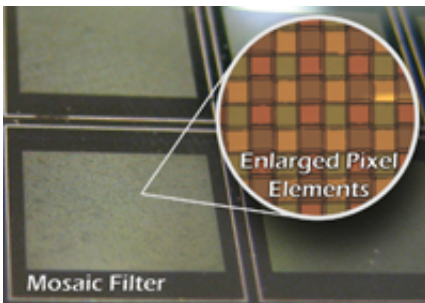


New technology puts biomedical imaging in palm of hands

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Enlarged diagram of filter mosaic

Researchers at Georgia Tech have developed a narrowband filter mosaic that will expand the uses and functionality of multispectral imaging—a technology that enables subsurface characterization. The new, single-exposure imaging tool could significantly improve point-of-care medical and forensic imaging by empowering front line clinicians with no specialized training to detect and assess, in real-time, the severity of bruises and erythema, regardless of patient skin pigmentation or available lighting.

In addition to this application, the filter could potentially offer a reliable, low-cost method to instantaneously classify military targets, sort produce, inspect product quality in manufacturing, detect contamination in foods, perform remote sensing in mining, monitor atmospheric composition in environmental engineering and diagnose

early stage cancer and tumors.

The technology was developed in Georgia Tech's Center for Assistive Technology and Environmental Access (CATEA) as part of a project to design a portable erythema and bruise-detection technology that will enhance early prevention and diagnosis of pressure ulcers, a secondary complication for people with impaired mobility and sensation.

Currently, clinical assessment of bruises is subjective and unreliable, especially when on persons with darkly pigmented skin. Improved imaging can lead to earlier intervention which is vital in cases of suspected physical abuse. Similarly, early detection of erythema can trigger preventive care that can stop progression into pressure ulcers.

The filter mosaic can be conveniently laminated with imaging sensors used in digital cameras. With a patent pending, CATEA researchers are currently seeking collaborative or financial support to further develop and design the device.

“Although multispectral imaging has matured into a technology with applications in many fields, clinicians and practitioners in these fields have generally stayed away from it due to extremely high costs and lack of portability,” said Dr. Stephen Sprigle, director of CATEA and professor of industrial design and human physiology. “Now, the possibilities are plentiful.”

Source: Georgia Institute of Technology

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