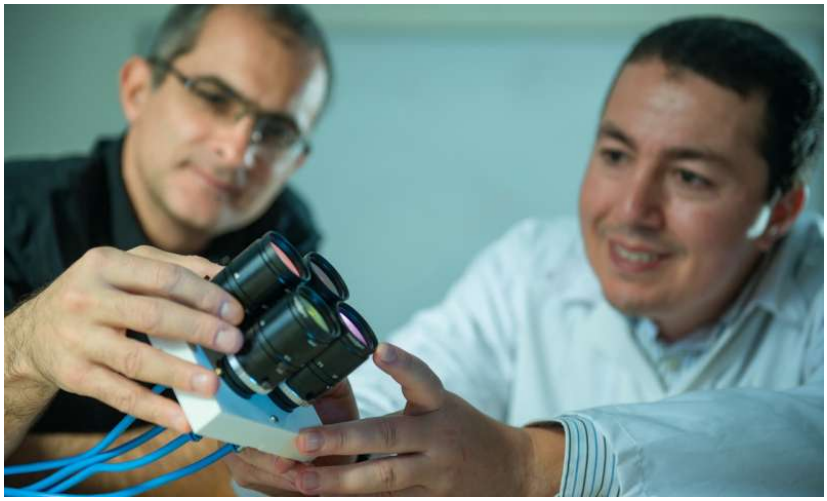
Hyperspectral content for cameras

December 8, 2017



Credit: American Associates, Ben-Gurion University of the Negev

New software developed by Ben-Gurion University of the Negev (BGU) researchers will enable standard cameras and smartphones to capture both hyperspectral images and video with a faster and more cost-efficient approach than what is commercially available today.

The game-changing software captures the spectral signature of every pixel in a single image - a significant improvement over current spectrometric technology, which can only measure one point or line at a time. Currently, hyperspectral cameras are expensive, cumbersome and slow, with a single picture taking as long as 60 seconds.

Hyperspectral cameras process and analyze information at various light wavelengths on the electromagnetic spectrum, capturing extremely high quality spatial and resolution images beyond what the unaided human eye can see. The technology is used in a wide range of industries including homeland security surveillance, medical imaging, oil and gas, mining, aerospace, and agriculture. Today, hyperspectral cameras can identify existence of oil or impurities in water, determine which peppers should be picked by a robot, or identify mineral deposits and help make medical diagnoses.

"Current hyperspectral technology seeks to capture the entire electromagnetic spectrum," says Prof. Ohad Ben-Shahar, founding director of the Interdisciplinary Computational Vision Laboratory and head of the BGU Department of Computer Science. "Using computational research, we have reconstructed hyperspectral imaging from the standard RGB (red, green,

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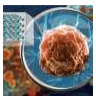
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blue) color model used in regular cameras. In most cases, this provides extremely good reconstruction."

The global hyperspectral imaging systems market is projected to reach $12.71 billion by 2021, according to a **Markets and Markets** report published in January 2017.

"Our researchers are world leaders in the fields of computational vision and electro-optical engineering, and a great part of this research can be utilized for commercial purposes," says Netta Cohen, chief executive officer of BGN Technologies, the technology-transfer company of BGU.

BGN Technologies has patented the technology and is working with the researchers to commercialize it.

"This invention will help make hyperspectral technology more accessible," adds Boaz Arad, a Ph.D. student in the BGU Department of Computer Science and the co-creator of the technology. "It will expand its use to new fields such as improved color imagery and light sensitivity in standard photography."

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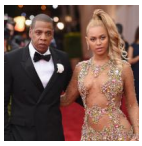

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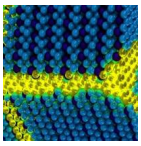

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