Solving pill recognition problems

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MSU Engineering researchers win NIH National Challenge to identify prescription pills

Unidentified or misidentified prescription pills is a booming problem, especially among the nation’s elderly, one that can have deadly consequences.

A Michigan State University engineering professor is doing his part to make that less of a danger.

Mi Zhang, an assistant professor of electrical and computer engineering, is the first-prize winner of the National Institutes of Health National Library of Medicine Pill Image Recognition Challenge, a national competition designed to develop new methods of automatically identifying pills using mobile phones.

Zhang and his colleagues were among many teams that created software and algorithms that will contribute to the creation of a system that can match photos taken by a smartphone to high-resolution images of prescription pills.

This new system can give consumers a simple way to recognize mystery pills, help prevent medication errors and reduce waste by identifying pills that otherwise might be discarded.

“Each prescribed pill is uniquely characterized by its shape, color and imprints,” Zhang said. “However, the color and shape of the pill could change when taking pictures of it under different light, background, angles and even using different phones. This is the biggest challenge of this problem.”

Specifically, Zhang and his teammates earned the $25,000 first place prize by developing an algorithm that achieves the best pill recognition performance among all the participating teams.
Other members of Zhang’s team include Ph.D. student Xiao Zeng and post-doctoral fellow Kai Cao.

The need for a pill-recognition tool is more important than ever, Zhang said. Nine out of 10 U.S. citizens who take more than one prescription pill are prone to misidentifying these pills. Taking such pills can result in adverse side effects or even death.

The competition was sponsored by the NLM, the world’s largest biomedical library. Located on the campus of the National Institutes of Health in Bethesda, Maryland, NLM maintains and makes available a vast print collection and produces electronic information resources on a wide range of topics that are searched billions of times each year by millions of people around the globe.

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