**Docket #:** S23-046

# Enhancing Texture Detection with Angle-Adaptive Pixel Technology

Stanford Researchers have developed a novel way of discerning texture in images with the help of nanostructured pixels.

Conveying surface textures in images has been an issue in modern imaging techniques. Humans perceive texture from an object's appearance, but this has not been possible in modern imaging without a reduction in resolution, and it remains a prevalent problem in multiple fields relying on accurate images of the environment.

Now, researchers at Stanford have discovered a way to convey surface texture with the use of nanostructured pixels. Through constructing angular responses from conventional pixels, the researchers enabled the detection of a variety of surface textures, even with a minimal set of angle-sensitive pixels. The technology is compatible with existing optical technologies resulting in accurate single-shot surface texture imaging.

**Stage of Deverlopment**

Prototype

## Applications

- Improved texture detection in imaging systems
- Conventional cameras
- Machine vision cameras
- Security cameras
- VR/MR headsets
- Light-field cameras
- LIDAR depth cameras

## Advantages

- Better imaging of textures without losing image resolution
- Improved imaging of textures without the need of additional optics
- Improves on existing sensor processes with compatible technology imaging.

## Patents

- Published Application: WO2024178377

## Innovators

- Nayeun Lee
- Mark Brongersma
- Jiho Hong

## Licensing Contact


### Matthew Ryan

Licensing Manager

Email