



QUANTIC

The UK Quantum Technology Hub
in Quantum Enhanced Imaging

3D imaging with data fusion

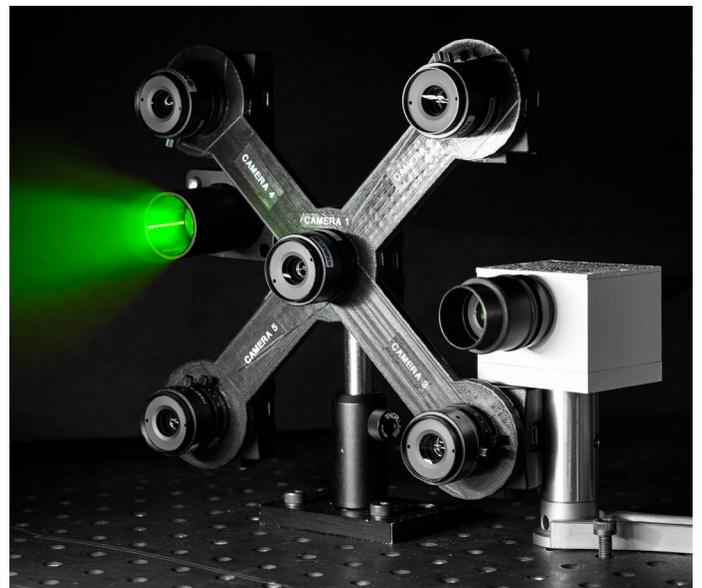
3D imaging has applications in many sectors ranging from quality control for high-value manufacturing to situational awareness for autonomous vehicles. In controlled environments and for specific tasks, 3D imaging approaches can be optimised to give reliable and consistent results. The outstanding challenge is reliable 3D imaging when the scene is ever changing or is subject to lighting anomalies.

Seeing in 3D is a key requirement in many industry sectors ranging from quality control in high value manufacturing to situational awareness for autonomous vehicles.

Many approaches can be optimised for ideal conditions and, when applied to repetitive tasks, 3D imaging systems can give reliable and consistent results. However, in situations where the scene is ever changing, or subject to lighting anomalies, virtually all 3D imaging systems degrade in performance giving intermittent and often unreliable results. These issues have very serious implications when 3D imaging systems are used in safety critical applications, such as advanced driver assistance systems, and have been a barrier to expanding their range of applications.

Researchers at QuantIC are developing a new system that uses data fusion from two different sensor types to increase reliability and extend the range of application of 3D imaging. By using multiple cameras a stereo image of the scene is obtained and combined with measurements of the time of flight of light pulses from a different sensor (LIDAR). The combination of LIDAR and stereo imaging using data fusion techniques provides a verified 3D scene, offering also detailed measurements of relative velocities of objects in the field of view.

This system can be further developed across a full suite of cost-sensitive, safety critical applications.



QuantIC has a £4M Partnership Resource Fund to support industry led projects. Work with us to develop new technology and facilitate its translation into commercial products.

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