

### **Modulation phase interferometry (MPI) (Ariel)**

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Many applications in commercial and defense industries require optical imaging and monitoring of the 3D environment. Some examples are robotics, CAD/CAM, reverse engineering, range finding, topography mapping and 3D cameras. Other applications require high-resolution characterization of optical components (e.g., fiber Bragg gratings, etc.).

However, for sub-centimeter depth resolution applications, state-of-the-art optical time-of-flight-based sensors require detectors and electronics working in the GHz range. These high frequency detectors have small active areas that severely limit the optical field-of-view and light collection efficiency of the imaging system, which leads to challenging requirements on the irradiation source (e.g., high laser power) and complex GHz electronics which is usually quite expensive. In addition, high-resolution characterization of optical components and materials is limited by detector and electronics bandwidth limitations.

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