

Portable, rugged, real-time atmospheric turbulence compensated imaging systems.

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Atmospheric turbulence is often the limiting factor when it comes to the spatial resolution of an imaging system operating in the visible part of the electromagnetic spectrum. This portable technology can provide dramatically increased spatial resolution in real-time using mostly software.

This disruptive imaging technology provides a means for providing near diffraction limited images – for example up to a 20 fold increase in the spatial resolution of an imaging system operating in the visible part of the electromagnetic spectrum with an 8 inch telescopic aperture -- that is portable, largely implementable in software, more accurate than current methods, and can be made to run in real-time (faster than 20 Hz). The result is a dramatic increase in the imaging system's spatial resolution for defense, intelligence, NASA, the media, and many other government and commercial applications. This atmospheric turbulence compensating imaging system can provide high performance imaging, can use specialized cameras or can be made compatible with existing commercially available camera or video camera recording systems, has reduced complexity over existing hardware-based adaptive optics systems, can work with just a single image frame, is highly portable, and can be ruggedized.