

Abstract Submitted
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Addition of Adapted Optics towards obtaining a quantitative detection of diabetic retinopathy BRIAN YUST, The University of Texas at San Antonio, ISIDRO OBREGON, ANDREW TSIN, DHIRAJ SARDAR — An adaptive optics system was assembled for correcting the aberrated wavefront of light reflected from the retina. The adaptive optics setup includes a superluminous diode light source, Hartmann-Shack wavefront sensor, deformable mirror, and imaging CCD camera. Aberrations found in the reflected wavefront are caused by changes in the index of refraction along the light path as the beam travels through the cornea, lens, and vitreous humour. The Hartmann-Shack sensor allows for detection of aberrations in the wavefront, which may then be corrected with the deformable mirror. It has been shown that there is a change in the polarization of light reflected from neovascularizations in the retina due to certain diseases, such as diabetic retinopathy. The adaptive optics system was assembled towards the goal of obtaining a quantitative measure of onset and progression of this ailment, as one does not currently exist. The study was done to show that the addition of adaptive optics results in a more accurate detection of neovascularization in the retina by measuring the expected changes in polarization of the corrected wavefront of reflected light.

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