REJEAN MUNGER, University of Ottawa Eye Institute, Ottawa Health Research Institute, Ottawa Hospital, Ottawa, Ontario

Modeling the optics of the human eye: An interesting mathematical enigma

Our visual perception of the world is the result of many factors, some physiological, some neural and some optical. The first step in this process is the formation of an image of the world in the back of the eye, the retina, where the photoreceptors, the light detectors, are located. As an optical instrument the eye is relatively simple in construction having only 2 refractive elements and one limiting aperture. Yet we have yet to build a model of the optics of a normal human eye that can be useful in clinical applications. We will discuss the mathematical issues that arise when (A) collecting data for deriving the model and (B) in solving for the optical system.