Retinex at 50

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It is our pleasure to introduce here the second special section about Retinex in the *Journal of Electronic Imaging*. The previous one was in Vol. 13 and was Retinex at 40. Here we celebrate its 50th anniversary.

Let us briefly recall the origins of Retinex.

Edwin Land first described the Retinex idea in the 1963 RESA William Proctor Prize address in Cleveland, Ohio, on December 30, 1963. It required that models of color appearance evaluate all of the pixels in the field of view as input, and through many experiments in the 1960s that were fundamental to our understanding of human vision, Retinex made a strong case for the idea that vision is the result of image processing of spatial information found in the image. The physics of receptor quanta catches dominates the first step in vision but cannot be used as a model for the rest of the visual appearance process. All receptor quanta catches are the input to the multiple spatial comparisons that generate appearance. The idea of using spatial comparisons to calculate color appearance is still relevant today and has proved to be highly influential in the broad vision science community, from psychophysics to neuroscience. Remarkably, the Retinex algorithm and variants of it have also shown great success on a number of applied problems in the context of image processing and computer vision.

Browsing through 50 years of literature, the term Retinex appears in many contexts, indicating different algorithms and different approaches. The Retinex at 50 special section aimed at collecting recent Retinex variants and new experiments together with a historical overview papers. These papers describe Retinex's main characteristics, recent solutions, and still open problems.