



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	Ophthalmology Research: An international Journal
Manuscript Number:	2013_OR_7008
Title of the Manuscript:	Multimodal Views of the Human Retina

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	Authors' response to final evaluator's comments
In the abstract Authors aim "To show the relationships between subject-reported measures of vision, the view through an ophthalmoscope, the view through a slit lamp, a photograph of a face, optical coherence tomography (OCT) images, fundus photos, visual field diagrams and Optomap images". At line 35, Authors aim "to show (in layman's terms) the relationships between the following views of the human retina: through the subject's eye, through an ophthalmoscope, through a slit lamp, through the clinician's eye looking at a face, fundus photos, optical coherence tomography images, visual field diagrams and Optomap images ". Nor the subject-reported vision or the visual field diagrams represent the view of the retina, but only state visual function.	At line 35, Authors aim "to show (in layman's terms) the relationships On line 35 we have removed "of the human retina." We are now using the term "view" in a technical sense, defined as follows. • An architectural description is organized into multiple views • A view describes the entire system from the perspective of a particular stakeholder. • A view conforms (a SysML relationship) to a single viewpoint • A viewpoint ▪ identifies stakeholders ▪ describes their architectural concerns ▪ specifies the modeling language (e. g. SysML) ▪ prescribes the modeling method e. g. $x \text{ dot} = Ax + Bu$ ▪ suggests risks



SDI FINAL EVALUATION FORM 1.1

The same is reported at lines 89-91. The statement at lines 94-95, the result of dozen of measurement (figure 2) is still unclear. It does not disclose the method to achieve the result of figure 2 through a set of measures. The explanation on the nose location relatively o the eyes (line 100-104) is not required.	The same is reported at lines 89-91. on line 83 we replaced <i>seeing</i> with visualizing The statement at lines 94-95, the result of dozen of measurement (figure 2) is still unclear. It does not disclose the method to achieve the result of figure 2 through a set of measures. We have added this section. <u>2.1.1 Documenting the wrinkled retina</u> Deriving figure 2 was complex and time consuming. For this subject, the luminance threshold for the left eye is about 1.5 log units higher than for the right eye. Therefore, for these measurements, a 1.5 log unit neutral density filter was fit onto the spectacle lens for the right eye. The subject would fixate on the center of the target and perceive a small portion of the target with peripheral vision. He would alternate eyes and sketch a small portion of figure 2. This process was repeated about one hundred times. Then a month later, the process was repeated again. Details in figure 2 changed slightly and slowly over the years. The second variant of this process allowed <i>simultaneous</i> viewing with the two eyes. Our subject has strabismus because of the first detached retina operation. So at rest, the image seen by his left eye drifts to the right. In this measurement, the target was displayed 2.9 m from the eyes, so that 5 cm equals one degree. The neutral density filter was still on the right lens. Then the subject allowed his eyes to cross so that his right eye saw the target in its normal position and simultaneously his left eye saw the target that had drifted to the right. He then the adjusted the sketch of figure 2. The two processes produced the same sketch for figure 2. This figure is the result of many of measurements taken over several years. None of our other retina visualization techniques gave resolution this fine. The explanation on the nose location relatively o the eyes (line 100-104) is not required. The following are lines 100 to 120 from the manuscript. The word “nose” has been removed. Fig. 2. The subject’s viewpoint of a black-line target composed of concentric squares. Next, in Figure 3, we compare several other techniques for evaluating the anatomy and physiology of the retina. The clinician’s view of the subject’s face is shown in the top row of Figure 3. The image of the subject’s right eye (OD) is on the left side of the figure and the
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Typo (?) line 215 “is not” would be “it is not”? The statement (line 220) “we resized one of the images...” is not clear. Which one was resized?	image of the subject’s left eye (OS) is on the right side of the figure. With the exception of this top row in Figure 3, all of the data in this paper are for one subject, ATB. Figure 3 shows, from top to bottom, the clinician’s view of the subject’s face, OCT images of the right and left retinas, horizontal cross sections of the retinas, fundus photos of the retinas and visual fields for the left and right eyes. For each row, the nasal sides of the eyes are in the middle and the temporal sides of the eyes are on the outside. Each column of Figure 3 has the foveae roughly aligned. The big blue arrows show corresponding locations in the different diagrams. For the right eye, the blue alignment arrow connects the temporal edges of the optic disk in the OCT image and in the fundus photo: this is meant to draw attention to the edge of the fovea in the cross section of the retina. For the left eye, this arrow connects, more naturally, the centers of the optic disks. The blue arrows show corresponding locations. Significant points were lined up as well as possible. However, a perfect mapping is impossible: because (among other reasons) the algorithms for transforming three-dimensional (3D) space into two-dimensional (2D) images are nonlinear and are different for different techniques. Furthermore, the magnification scales are different for each diagram in this figure. Typo (?) line 215 “is not” would be “it is not”? We have changed “it not” to “it is not.” The statement (line 220) “we resized one of the images...” is not clear. Which one was resized? Line 220, we resized either the fundus photo or the visual field whichever was most convenient.
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