Targeting for Important Color Content: Near Neutrals and Pastels

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Abstract

The elements of a successful imaging performance program should include; establishing of performance goals, efficient test plans, and periodic performance auditing. All three of these require the selection and adoption of test objects as references. In many cases the use of common color elements such as those of the ColorChecker® test target is sufficient. However for critical collections predominated by near neutrals (e.g. paper, vellum, parchments), limited color gamut (e.g., watercolors), or near singular hues (early photographic prints), the capture of small color differences is not only important but problematic, largely because the color targets used today to calibrate digital capture devices were not designed to discriminate the subtle color gradations of such content.

Recently [IS&T Archiving Conf, 2010], we described how the measurement and testing of color image capture performance for cultural heritage imaging could be adapted for special collections such as those indicated above. As a continuation of this effort, we now present both the methods and initial results of the selection of test target elements, testing/calibration methods and results. We start by characterizing the spectral reflectance characteristics of the collection materials. These are then compared with the corresponding properties for a database of practical, available color samples. For a given collection, the automated selection method of corresponding color patches is demonstrated. We then describe how color calibration and performance monitoring software can be designed to accommodate the flexible testing of special color materials. Aspects of the resulting system, color-patch selection, target assembly and analysis software are then described, as are criteria for the successful application of such a program.

Figure 1: Larks, Das Buch der Welt (Book of the World) a German encyclopedia. Hand colored engraving, 1859, with an object-level target.

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