

Measuring Image Quality

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Image quality measurements are an important part of any document processing system. Standards can be created to establish acceptance criteria based upon these measurements. They can be used as a feedback mechanism to monitor and tune processing. Quality measurements can be broken into two broad categories: objective and subjective. Objective metrics consist of those measurements which can be calculated from the image itself. They are preferred because of their consistency but are not always possible due to the difficulty of defining measures that reliably track quality. Subjective measures, also known as human measures, can be less predictable and may not be reproducible. These measures are inconsistent, can be time consuming, and require expensive manpower.

FamilySearch has for years supported a subjective evaluation of its images to monitor image quality. However, advances in technology to create and process images have outpaced the ability to consistently and accurately evaluate these images. Work has begun which attempts to standardize acceptance criteria as well as investigate methods to apply objective quality measurements to assist in the evaluation effort.

This presentation will discuss the standardization effort. It will also discuss the effort to measure image quality by comparing objective results to subjective conclusions. The objective measures covered will include MSE, and the Universal Quality Index (Wang, Z.; Bovick, A.C., A Universal Image Quality Index, IEEE Signal Processing Letters, vol. 9, issue 3, pp. 81-84).