W1.1 Image Quality of Printers W1.1 2001 - 060
MicroUniformity
Robert E. Zeman
Dec 13, 2001
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Micro Uniformity Ad-hoc Group Meeting, Dec 11th, 2001 11:00AM EST

(Tele)present: Robert Zeman (Chair, Kodak), Bill Kress(Minolta-QMS), Paul Kane(Kodak), George Chiu (Purdue)

With only four members present, we decided to continue the march, as it were.

We began discussing the aperture size, agreeing that because different sizes will yield different results, we will need to justify our choice and this may come about via computing metrics through a series of sizes, or via some a priori justification. Since Rene seems to have some opinions about this issue, we agreed to delay its discussion until he is present.

BK mentioned that with a small amount of psychophysical data, he has tested and tweaked his code to acquire predictors reliably. Looking over the output from some 12-14 laser printers, however, he noted that there appear to be many more defects than we have identified, including patterns, halftone weaves with and without substantial noise, high frequency banding, single bands and very few sinusoids, which we have used as our initial analysis set-up target. Asked if the defects were repeatable from the same machine, the answer was negative, which raises the difficulty of obtaining identical samples for all group members. One suggestion was to scan a sample at high resolution and use a clean, reproducible process (e.g., silver halide or a conventional printing process) to generate identical copies. BK mentioned that he has an Epson 5500 inkjet printer that may be adequately repeatable. BK mentioned that he has restricted his current work to an L* 50-70 region, and that he is also working on a 2-D FFT analysis procedure.

On the psychophysics front, GC mentioned that he has some rank ordering data from viewing sine waves of various amplitudes and frequencies. Using both 6mm and 12mm apertures on 25, 50 & 75% tints from one printer, he stated that the data is noisy.

The discussion closed with the creation of a list of decisions/approaches that need to be hammered out next year. They are:

1. What is the appropriate viewing aperture size? How shall we decide this?
2. What will be the psychophysical procedure and analysis used?
3. What shall we do about mean density? Specify one or measure many?
4. Have we covered all representative image defects? What about textures, halftone patterns, etc.?
5. How shall we duplicate sets of samples for everyone to test?

All of these questions need to be answered before we can attempt to devise metrics and analyses.

It was suggested that we try to set up a bulletin board on the official W1.1 site, so that we could communicate ideas, comments and results more continuously, outside of waiting for scheduled teleconferences. RZ said he would look into it.

Next Teleconference: TBD in January, 2002. Phone number: 1-888-394-5271

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