



FM-Halftoning with surrounding-influenced quantization and lazy propagation

Invention

This invention introduces a new error diffusion FM technique for printing devices which uses the maximal available, native resolution of the device. Sharpest images with a reliable color reproduction can be achieved using an integrative measurement of the behavior of all channels resulting in an optimized raster for each specific device.

Background

Existing FM rasterization techniques for printing devices use a reduced resolution to control the strong dotgain effects which FM techniques are known for. The drawback of a reduced resolution, however, is that the resulting images show a grainy appearance. Even more, edges are blurred out due to the error diffusion. Therefore, FM is not widely used in printing.

Advantages

In this invention, the dotgain is directly incorporated into the algorithm instead of applying preliminary color-corrections like it is known from ICC-CMS. By performing an integrative measurement of predefined patterns, the effect of every single dot can be predicted. This is used to control the rasterization so that dotgain is automatically corrected while rasterizing the image. Therefore, possible loss of contrast and detail caused by the color corrections is avoided while at the same time, the native resolution of the device can be used. In addition, the error diffusion technique used in this invention creates a dot distribution very close to blue noise which results in a smooth look with minimal artifacts.

Applications

Several FM algorithms are already used for testing by various printing companies. This invention is especially designed to be integrated to office printing but is also applicable in high volume printing. Using the smooth dot distribution at the highest resolution results in very high quality images even for standard printing devices.

Ownership

Empa, Swiss Federal Laboratories for Materials Testing and Research, Überlandstrasse 129, CH-8600 Dübendorf

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Contact

Empa, Technology Transfer
Alexander Sutter, alexander.sutter@empa.ch
Phone +41 44 823 45 55, Fax +41 44 823 40 08

Technical Information Tobias Stamm, Scientist, Media Technology
tobias.stamm@empa.ch
Phone +41 44 823 46 75, Fax +41 44 823 41 75

Klaus Simon, Professor, Media Technology
klaus.simon@empa.ch
Phone +41 44 823 41 71, Fax +41 44 823 41 75

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Materials Science & Technology

Empa

CH-8600 Dübendorf
Überlandstrasse 129

Telefon +41 44 823 55 11
Fax +41 44 821 62 44

CH-9014 St.Gallen
Lerchenfeldstrasse 5

Telefon +41 71 274 74 74
Fax +41 71 274 74 99

CH-3602 Thun
Feuerwerkerstrasse 39

Telefon +41 33 228 46 26
Fax +41 33 228 44 90