Methods of camera noise reduction for digital mobile devices

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Abstract

Artifacts in images have two main causes: - influence of thermal noise - lossy coding based on DCT coefficients quantization and bit-rate control For high quality coding visual distortion results mainly from the artifacts belonging to the first type. Influence of thermal noise on image can be approximated by additive white gaussian noise. To reduce this noise one can use various filters from Adobe Photoshop, Gimp, Paint.Net or Akvis Noise Buster graphics packages. In this presentation an overview of the filters from these packages is given. A special noise reducing algorithm is proposed. This algorithm uses adaptive calculation of the filter parameters that allows reducing noise more effectively . The presentation provides a description of the developed method as well as PSNR and SSIM comparison of this method with the filters from well-known graphics packages. Also shots of digital cameras for several mobile devices and corresponding filtered images are introduced.