

New JPEG encoder Guetzli sweetens image-heavy work tasks

20 March 2017, by Nancy Owano



16x16 pixel synthetic example of a phone line hanging against a blue sky — traditionally a case where JPEG compression algorithms suffer from artifacts. Uncompressed original is on the left. Guetzli (on the right) shows less ringing artefacts than libjpeg (middle) and has a smaller file size. Credit: Google

(Tech Xplore)—An open source JPEG encoder has been announced by the name of [Guetzli](#) and the code is available to download from Github. The good news is that this open source Guetzli makes JPEGs 35% smaller without hurting quality.

The Google Research Blog on Thursday (cross-announced on the Google Open Source Blog, the latter carrying news about [open source](#) student programs and software releases) made the announcement. Authors of the [blog](#) were Robert Obryk and Jyrki Alakuijala, software engineers, Google Research Europe. (Guetzli is cookie in Swiss German.)

Commenting on the announcement, Sebastian Anthony, editor of *Ars Technica UK*, said, "While the primary use case of Guetzli will be reducing file [size](#), Google Research reckons it can also be used to increase the perceived quality of JPEGs while keeping the file size the same."

A note from the blog, however, pointed out that "while Guetzli creates smaller image file sizes, the tradeoff is that these search algorithms take significantly longer to create compressed images

than currently available methods."

Nonetheless, the blog authors said the slower compression was a worthy tradeoff, as "in experiments where compressed image file sizes are kept constant human raters consistently preferred the images Guetzli produced over libjpeg images, even when the libjpeg files were the same size or even slightly larger." *PetaPixel* further translated: "Guetzli is slower than the encoders it out-performs. But the performance boost is so significant, Google believes the tradeoff is worth it."

As one commenter stated on the blog post, "I am all for smaller file sizes without having to change file formats. Woo!"



20x24 pixel zoomed areas from a picture of a cat's eye. Uncompressed original on the left. Guetzli (on the right) shows less ringing artefacts than libjpeg (middle) without requiring a larger file size. Credit: Google

The blog announcers described Guetzli as an algorithm creating high quality JPEG images with file sizes 35% smaller than currently available methods. They wrote that this is "a JPEG encoder for digital images and web graphics that can enable faster online experiences by producing smaller JPEG files while still maintaining compatibility with existing browsers, image processing applications and the JPEG standard."

DL Cade in *PetaPixel* also explained that "the Guetzli encoder doesn't create a new file format. Any existing imaging program and browser that can read JPEGs—so ... every existing imaging program and browser—can already read the [output](#)."

Sebastian Anthony in *Ars Technica* also noted, importantly, "Google's new JPEGs are completely compatible with existing browsers, devices, photo editing apps, and the JPEG standard."

Who will gain?

According to the blog post, "It is our hope that webmasters and graphic designers will find Guetzli useful and apply it to their photographic content, making users' experience smoother on image-heavy websites in addition to reducing load times and bandwidth costs for [mobile](#) users. "

Sebastian Anthony, meanwhile, discussed the technology at play.

He said that according to Google Research, Guetzli uses a psychovisual model called Butteraugli "to work out which colours and details to keep, and which to throw away. 'Psychovisual' in this case means it's based on the human visual processing system. The exact details of Butteraugli are buried within hundreds of high-precision constants, which produce a model that 'approximates colour perception and visual masking in a more thorough and detailed way' than other encoders."

More information:

research.googleblog.com/2017/03/new-jpeg-encoder-guetzli-sweetens-image-heavy-work-tasks-2017-03-20.html

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