Errata — A Variational Approach to JPEG Anti-Forensics

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December 6, 2013

Due to some bugs during the simulation, our paper entitled "A Variational Approach to JPEG Anti-Forensics", which was published in ICASSP 2013, was with some errors. We sincerely apologize for our careless mistakes. The correct figures are in fact not far from the ones shown in the paper. However, in order to be precise, we hereby provide the correct results.

The two figures shown (in Fig. 1) below are corresponding to "Fig. 2-(e) and -(f)" in the paper. Table 1 and 2 are corresponding to "Table 1 and 2" in the paper, respectively. Note that, here we only list the detection reliability and image quality results of our JPEG forgeries $\{\mathcal{F}_k^{F_b}\}$ and $\{\mathcal{F}_k^{F_b F_c}\}$.
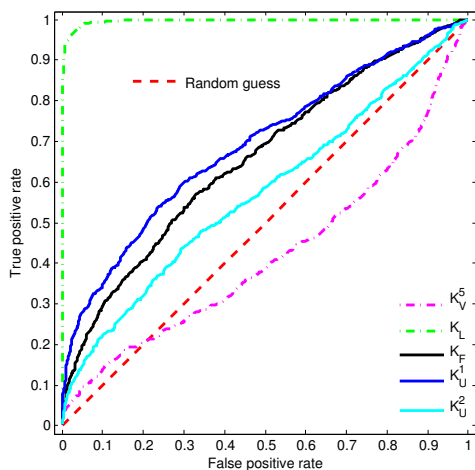

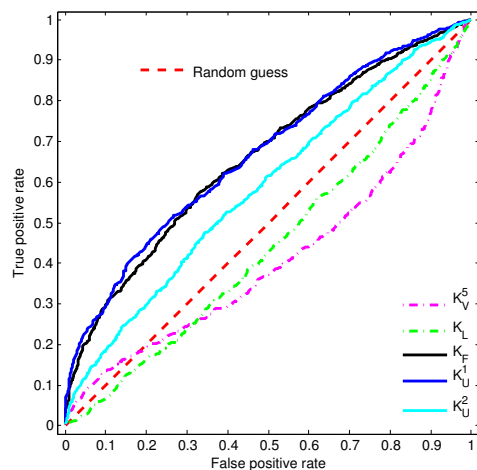Fig. 2-(e) $\{\mathcal{F}_k^{F_b}\} \cup \{\mathcal{I}_k\}$ Fig. 2-(f) $\{\mathcal{F}_k^{F_b F_c}\} \cup \{\mathcal{I}_k\}$

Figure 1: ROC curves of our JPEG forgeries against JPEG forensic detectors.

Table 1: Detection reliability.

	K_V^5	K_L	K_F	K_U^1	K_U^2
$\{\mathcal{F}_k^{F_b}\}$	-0.1555	0.9937	0.3169	0.3844	0.1484
$\{\mathcal{F}_k^{F_b F_c}\}$	-0.1758	-0.1090	0.3206	0.3380	0.1717

Table 2: Comparison of image quality.

	$\{\mathcal{F}_k^{F_b}\}$	$\{\mathcal{F}_k^{F_b F_c}\}$
PSNR	34.2058	34.1811
SSIM	0.9795	0.9795

Moreover, in the last third paragraph of the paper, we wrote "93.20% of the images had the estimated quantization table full of entries being either 1 or 'undetermined'." The correct percentage should be 83.41%. However, this problem can be tackled using a similar strategy in our improved JPEG anti-forensic method which was published in IH&MMSec 2013 ("JPEG Anti-forensics Using Non-parametric DCT Quantization Noise Estimation and Natural Image Statistics"), by adding a very small amount of white Gaussian noise to the processed image before the *de-calibration* operation. This would effectively increase the percentage of JPEG forgeries which can pass the forensic test of the quantization table estimation based detector, while keeping a good detection undetectability against JPEG forensic detectors and a high image quality. We refer interested readers to our previously mentioned paper, also for the discussion of the reliability analysis of the quantization table estimation based detector.