COM-PRESS: Dashboard to Detect (AI-based) Image Manipulations

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Abstract—The COM-PRESS dashboard enables image manipulation analysis for fact checkers.

Index Terms—Multimedia Forensics, Image Forgery Detection, Deepfake Detection.

I. DESCRIPTION

Manipulating images used to require some expertise using tools such as Photoshop, but has become easier using AI-based tools such as deepfake faceswap apps and Adobe's new Generative Fill. There is a growing concern that manipulated images will be used more frequently for disinformation purposes. Although many manipulation detection methods have been proposed in the scientific literature, these are not accessible to non-technical people such as journalists, and often require expensive hardware.

To address this challenge, we designed the COM-PRESS dashboard, which provides easy access to image manipulation detection methods. As such, we aid journalists in fact-checking processes. Although fact checkers are the main target group, the tool is publicly available such that anyone can investigate forged images, on https://com-press.ilabt.imec.be.

Users can upload images, after which they will be analyzed by 13 open-source detection methods on our server. The results are visualized on our website as heatmaps that aim to localize potential forgeries.

Several additional features are available. First, a transparency slider enables to overlay the heatmap on the original image to simplify visual inspection. Second, an embedded code button enables journalists to copy-and paste the heatmap and transparency slider in online articles. Third, fact checkers and experts can add comments to provide extra context and aid the interpretation when sharing the analysis results.

COM-PRESS is an interdisciplinary project, which fosters collaboration between computer and communication scientists, as well as the media, and received subsidies from the Flemish government's Department of Culture, Youth & Media.

In summary, COM-PRESS is a valuable tool to perform image verification and counter disinformation. By making open-source detection techniques publicly accessible, it empowers journalists with extra resources to confirm image authenticity and uphold the spread of truthful information amidst the rise of online disinformation.
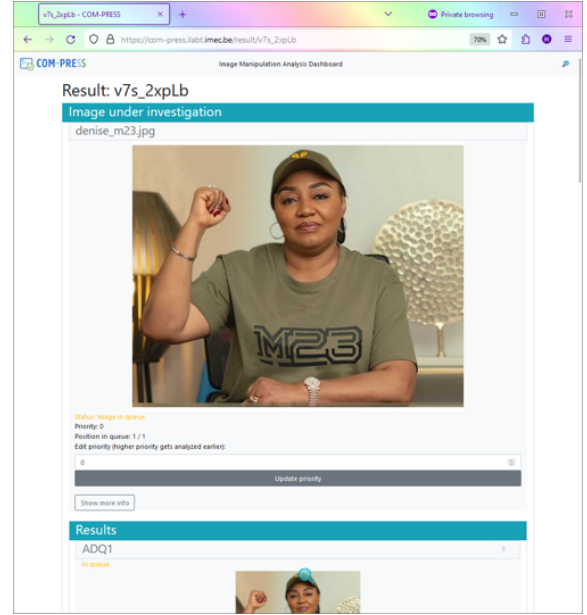

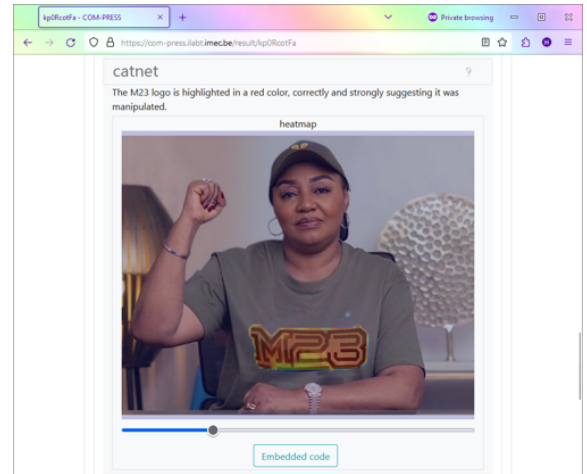Fig. 1. Users can upload images for manipulation analysis on the dashboard.

Fig. 2. The result is a heatmap that highlights potentially manipulated areas.