

Press Release: CeBIT 2017

Revolution in reverse image research

The software company Intelligent Monitoring & Prognostics (IM&P) GmbH has developed and successfully tested an algorithm that not only finds original images, but also very changed images on the Internet. Thus, the software makes a significant contribution to the protection of copyrights and the fight against fake news.

Our enhanced Reverse Image Search (eRIS) software solution locates in the internet duplicates and also changed images deviating from the original image by symmetry operations (rotations, reflections), affine compressions, colour changes and also dilations.

Our software product consists of an investigation module and a research module, which are both based on a fast algorithm for image characterization. The algorithm is based on structural signatures that are to be understood as a kind of fingerprint of the image content. Formally, the underlying algorithm consists of 2^{1984} different signature configurations allowing a very good differentiation of different images. **Even through image compression, affine image deformation, uniform changes, rotations and reflections the signatures remain unchanged.**

However, due to a recalculation of the colour values of each pixel, by scaling and saturation effects or by complex changes in the colour structure the signature can be weakly distorted. Therefore, the original image and the modified/changed image will be considered to be identical if their signatures are adjacent.

The software product can be applied to...

- ... enhance the reverse image search
- ... assist in finding the violation of image rights
- ... verify images in false reports (fake news) on social media

The software product offers the following USPs:

- ... increased quality and efficiency compared with methods of market leaders
- ... high speed due to an efficiently storing of image signatures in databases
- ... recognizes images despite changes

Test our software online free of charge. Contact us!

Visit us at the CeBIT at the stand of the state of Saxony-Anhalt:

- **Hall 6, Stand B47**

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Proof of concept based on a test image: Donald Trump






















Input file / search with	Reverse image search with an freely available web service	
 Original image	 Original image found	 Original image found
 Color change	 Original image found	 Original image found
 Rotation	 Wrong image found	 Original image found
 Reflection	 Wrong image found	 Original image found
 Compressed image	 Original image found	 Original image found
 Affine shrunk image	 Only visually similar image found	 Original image found
 Rotated, black and white, blurred	 Only visually similar image found	 Original image found

Image copyright: Michael Vadon; Source: https://commons.wikimedia.org/wiki/File:Donald_Trump_September_3_2015.jpg (February 10, 2017)