PhotoDNA

PhotoDNA is an extraordinary technology developed and donated by Microsoft Research and Dartmouth College. This "robust hashing" technology, calculates the particular characteristics of a given digital image. Its digital fingerprint or "hash value" enables it to match it to other copies of that same image. Most common forms of hashing technology are insufficient because once a digital image has been altered in any way, whether by resizing, resaving in a different format, or through digital editing, its original hash value is replaced by a new hash. The image may look exactly the same to a viewer, but there is no way to match one photo to another through their hashes. PhotoDNA enables the U.S. National Center for Missing & Exploited Children (NCMEC) and leading technology companies such as Facebook, Twitter, and Google, to match images through the use of a mathematical signature with a likelihood of false positive of 1 in 10 billion. Once NCMEC assigns PhotoDNA signatures to known images of abuse, those signatures can be shared with online service providers, who can match them against the hashes of photos on their own services, find copies of the same photos and remove them. Also, by identifying previously "invisible" copies of identical photos, law enforcement may get new leads to help track down the perpetrators. These are among "the worst of the worst" images of prepubescent children being sexually abused, images that no one believes to be protected speech. Technology companies can use the mathematical algorithm and search their servers and databases to find matches to that image. When matches are found, the images can be removed as violations of the company's terms of use. This is a precise, surgical technique for preventing the redistribution of such images and it is based on voluntary, private sector leadership.

The International Centre for Missing & Exploited Children (ICMEC) is working to distribute PhotoDNA worldwide. Major international law enforcement organizations, and companies that offer forensic platforms to law enforcement have all adopted PhotoDNA as an industry standard for robust image hashing. Thanks to Microsoft's generosity and commitment, PhotoDNA is available to companies and law enforcement at no cost.