

Can I Trust This Photo?

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Abstract

With the fast proliferation of digital cameras and other image acquisition devices due to the advancement in digital photography technology, photos from the public may have good news values for making journalist reports. However, one big challenge is how to authenticate the photo contents from the public, which may come from unreliable sources. A large variety of forensics works have been proposed to address various forensic challenges based on different types of tell-tale signs. This talk introduces several techniques for: (1) Accurate detection of image demosaicing regularity as a general type of image forensics features. (2) Identification of various common image source models including digital still cameras, RAW conversion tools and the low-end mobile cameras; (3) Universal detection of a wide range of common image tampering. (4) Tampering detection for blur images. (5) EXIF file tampering or content manipulations, (6) Tempering detection with blur images, and (7) Prevention of the image recapturing threat. These techniques help expose common image forgeries, especially those easy-to-make forgeries, which can be hardly seen directly by human eyes. The common theme behind these forensics techniques is through statistical detection of some intrinsic image regularity or tampering anomalies.

Biography

Prof. Alex Kot has been with the Nanyang Technological University, Singapore since 1991. He headed the Division of Information Engineering for eight years before serving as the Vice Dean Research for the School of Electrical and Electronic Engineering. He is currently Professor and Associate Dean for College of Engineering. He is also the Director of Rapid-Rich Object Search (ROSE) Lab and a Program Director for New Media at IGS, NTU. He has published extensively in the areas of signal processing for communication, biometrics, data-hiding, image forensics, information security. His new research area is in the domain object search and recognition. Dr. Kot has served as Associate Editor for 9 IEEE Transactions and Journals including Signal Processing, Image Processing, Multimedia, Signal Processing Letters, Signal Processing Magazine, Video Technology, and Information Forensics and Security. Dr. Kot has served the IEEE SP Society in various capacities such as the General Co-Chair for the 2004 IEEE International Conference on Image Processing (ICIP) and as a member in the IEEE Fellow Evaluation Committee. He now serves as the Vice-President for the IEEE Signal Processing Society. He is a member of IEEE SPS Board of Governors. He delivered several keynote addresses and received the Best Teacher of the Year Award. He is a co-author for several Best Paper Awards. He was the IEEE CASS Distinguished Lecturer in 2005 and 2006, and is an IEEE

SPS Distinguished Lecturer in 2014 and 2015, a Fellow of IES, a Fellow of IEEE, and a Fellow of Academy of Engineering, Singapore.