Abstract

This paper presents a unified Steganalyzer that can work with different media types such as images and audios. It is also capable of providing improved accuracy in stego detection through the use of multiple algorithms. The designed system integrates different steganalysis techniques in a reliable Steganalyzer by using a Services Oriented Architecture (SOA). Other
contributions of the research done in this paper include, an improved Mel-Cepstrum technique for audio wav files feature extraction that results in better accuracy in stego detection (> 99.9%), improved overall classification system that is based on three individual classifiers; a Neural Network classifier, a Support Vector Machines classifier, and an AdaBoost algorithm based classifier. Finally, an extensible classifier is introduced that allows incorporation of detecting new embedding techniques to the current system, so that the framework will continue to provide reliable stego detection for future embedding algorithms.

Reference

and research issues. The VLDB Journal — The International Journal on Very Large Data
Model for Service Oriented Architecture 1.0. Organization for the Advancement of Structured
2011
Sprott, D., Wilkes, L. Understanding Service-Oriented Architecture.
He, H. What Is Service-Oriented Architecture.
Liu, Q., Sung, A. H., Qiao, M.: Derivative Based Audio Steganalysis. ACM Transactions
on Multimedia Computing, Communications and Applications, in press.
Proceedings of the seventeen ACM international conference on Multimedia, Beijing, China.
873-876 October (2009)
Abdelfattah, E., Mahmood, A. A Multi-Algorithm, High Reliability Steganalyzer based on
Services Oriented Architecture. International Joint Conferences on Computer, Information, and
Systems Sciences, and Engineering December (2010)
Ellis, D.: PLP and RASTA (and MFCC, and inversion) in Matlab using melfcc.m and
Freund, Y., Shapire, R.: A decision-theoretic generalization of on-line learning and an
application to boosting. Proceedings of the Second European Conference on Computational
Boosting. (2009)
Quach,T.: Information Similarity Metrics in Information Security and Forensics. Ph.D.
Dissertation, University of New Mexico, Albuquerque. (2009)
matlabcentral/fileexchange/21317-adaboost Accessed 20 May 2011

Index Terms

Computer Science
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Key words

Mel-Cepstrum  Support Vector Machines  Neural Networks

AdaBoost