Multimedia Intelligence in Forensics and Security

Dr. Chengcui Zhang
University of Alabama at Birmingham

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Abstract:

With the proliferation of multimedia data, there has been a trend to use it as a source of intelligence to study many interesting forensic and security problems such as behavior profiling, video surveillance applications, and multimedia content security. Serious challenges arise from the sheer data volume, however, tasks that were previously subjected to manual inspection are now far beyond the capacities of forensic experts. Tools are needed to support the management, processing, interpretation, and visualization of multimedia data during the various steps of the investigative process. In this talk, I will present one of my recent research projects of applying image analysis techniques to product illustrations to detect fraudulent acts on online auction selling platforms such as eBay. The key hypothesis is that consistent image-editing styles can serve as a basis for resolving the identity of online sellers, such that automatic style modeling could help detect account takeovers or link multiple accounts. Relying on the identification of repetitive visual elements and local feature matching, this approach is shown to outperform previous methods in this emerging area. I will also briefly present some of my other current research projects that are in the same general area, including image spam data mining, phishing website mining, and video surveillance, etc.

Biography:

Dr. Chengcui Zhang is an Associate Professor of Computer and Information Sciences at the University of Alabama at Birmingham. She has done fundamental and applied research in data mining, multimedia databases, bioinformatics, and computer forensics.

She is the Director of the Knowledge Discovery and Data Mining Laboratory and a core member of the Center for Information Assurance and Joint Forensics Research at CIS/UAB. Dr. Zhang has authored and co-authored more than 100 papers in journals, refereed conference/symposium/workshop proceedings, and book chapters. She has received funding from NSF, NIH, IBM, and eBay, among others.

Dr. Zhang has been a program chair for IEEE International Symposium on Multimedia, IEEE International Conference on Information Reuse and Integration, and IEEE International Conference on Multimedia Ubiquitous Engineering. She is an Associate Editor of International Journal of Multimedia Data Engineering and Management and Editorial Board for 6 other journals. Dr. Zhang has been a guest editor for five journal special issues. She also serves/served as a member of the technical program committee for more than 100 professional meetings.