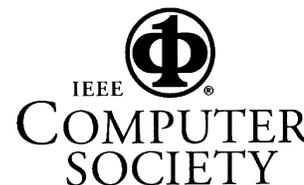


Preventing Piracy with Digital Watermarking Technology

Jeffery Lubin



Content owners (movie companies and others) would like to have information embedded in their digital products for many reasons. For example, they may want to know how to trace pirated video copies back to their last legitimate points of distribution. Forensic watermarking can be used to uniquely identify each copy of the content. Until now, however, there has been no technique that is both invisible even to Hollywood “Golden Eyes”, yet robust enough to be readable even in a badly compressed copy of a theater camcorder capture.

Sarnoff’s iTrace™ watermark is based on previously ignored low spatiotemporal frequency marking patterns and on the expertise behind the Emmy™ winning JNDmetrix™ motion imagery quality metrics. The iTrace watermark achieves both desired features: golden-eyes fidelity and camcorder capture robustness, while maintaining effective security against jamming. It is even secure from attackers who have complete knowledge of the embedding algorithm. Furthermore, the inherent low-frequency characteristics of the iTrace marks enable cost-effective high performance offerings across the full range of distribution pathways, from film-based and digital cinema to digital mastering to DVD production and Internet download.

This talk will describe the history and rationale of the iTrace marks, basic principles of operation, and performance measures and analyses in robustness, fidelity, and security. Additionally, the speaker will demonstrate some low frequency-based architectures for deployment in different media.

Jeffery Lubin is the lead scientist for Sarnoff Corporation’s Emmy-award winning ihuman vision modeling efforts. Jeff has a Ph.D. in Psychology from University of Pennsylvania, where he did research in modeling human visual motion perception. Jeff developed machine vision algorithms for a robotics start-up company in Massachusetts before coming to Sarnoff. He has been working for Sarnoff for the past fifteen years. Jeff is the inventor of approximately 15 U.S. patents, with others pending.

Date: Thursday, February 17, 2005, 8:00 pm (Refreshments at 7:30 pm)
Place: Sarnoff Corp., Routes 1 and 571, Princeton, NJ
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On-line info: <http://www.acm.org/chapters/princetonacm>

All ACM / IEEE-CS meetings are open to the public. Students and their parents are welcome. There is no admission charge, and refreshments are served.

A pre-meeting dinner with the speaker is held at 6:00 p.m. at Ruby Tuesday’s Restaurant on US 1. Please send email to princetonacm@acm.org in advance if you plan to attend the dinner.

