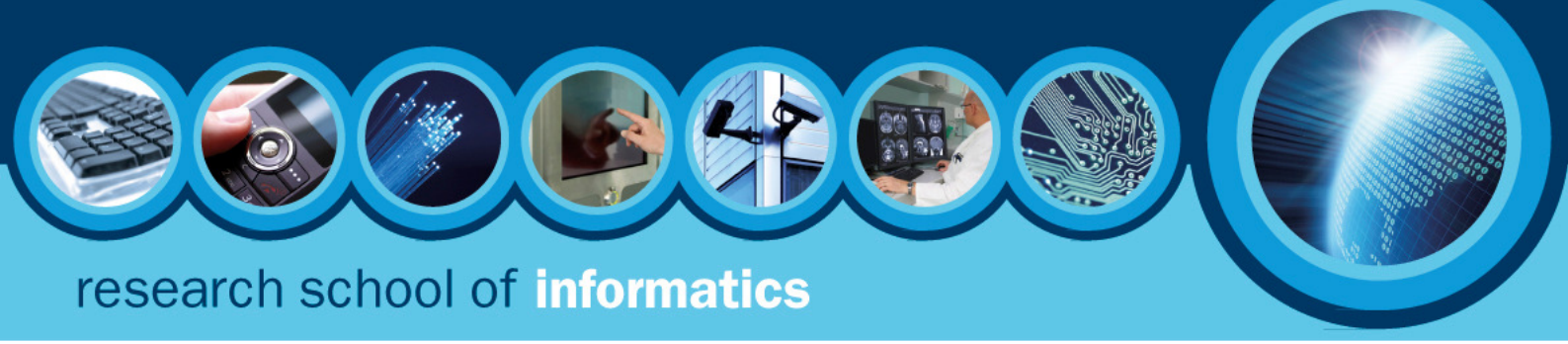

research school of **informatics**

Project Title:	Digital Rights Management Techniques for H.264 Video
Student Name:	Mohammad Athar Ali
Supervisor Name:	Dr Eran Edirisinghe
Start/End Date:	October 2008 – September 2011
Funding Source:	Loughborough University
Department:	Computer Science

Project Description:

The rapid growth of broadband internet has led to the easy exchange multimedia information. This means that digital media can be easily copied, manipulated and retransmitted. This leads to copyright violations and is a major issue with content production companies. Further, the easy availability of substantial processing power make launching attacks on digital content that much more feasible.

H.264 is the latest state-of-the-art video coding standard. It is becoming increasingly popular due to its very high compression ratio, which is a result of many new encoding and compression techniques incorporated in the encoder. Many popular websites such as youtube.com make use of this standard to encode and store video content. The high compression ratio means that the resultant video content can be easily transmitted over a very low bitrate channel and this makes duplication and copying that much easier. Thus there is a need for developing some low complexity Digital Rights Management (DRM) techniques/algorithms for H.264 video coding standard. DRM is an access control technology that content producers use to impose limitations on the usage of digital content and video. This is normally done either through watermarking and/or cryptography. But cryptography requires substantial processing power due to the complex mathematical computations involved and that too iteratively. Low computational complexity is an important criterion for H.264 video since this video standard is also supported in low-power battery operated handheld devices such as portable video players and cell phones. Hence, the need of lightweight DRM algorithms. In such a scenario, watermarking turns out to be a better option. This work aims to fill this gap by developing and analyzing a number of watermarking algorithms that exploit the characteristics of the H.264 standard. The algorithms to be designed should satisfy the criteria of transparency, security and low computational complexity.

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