Project proposal template – Faculty studentships Summer 2014

Project title	Forensics Investigation of Multimedia Data	*Director of Study*	Dr Dimitris Tsaptsinos
Second Supervisor	Prof. Jamshid Dehmeshki	*School*	Computing and Infor
Other members of supervisory team		*Any requirements from applicant (eg degree in specific subject area)*	Interest in machine learning and multimedia.

Project summary

(max 1,000 characters)

Digital forensics is defined as "the process of uncovering and interpreting electronic data for use in a court of law. The goal of the process is to preserve any evidence in its most original form while performing a structured investigation by collecting, identifying and validating the digital information for the purpose of reconstructing past events."

Nowadays the amount of digital data one stores using a computer, a smartphone, a laptop, a GPS, or a multimedia player is vast and for that reason current research concentrates on the development of automatic methods and practices to aid the digital investigator towards the analysis.

The proposed research work is to concentrate on electronic evidence that can be found in multimedia such as images, audio and videos. Research in this area includes among others source identification (what device was used to create the media), content forgery (detecting if the media has been tampered with), steganography. We are interested to use machine learning techniques for content classification of such media. In particular we are interested to classify digital images and videos in one of two ways: Either they contain nudity or they do not.

The aim of this project is to develop a machine learning based framework is to detect nudity in a given media and to define and develop specific criteria to quantify the percentage of nudity.