

十一、研究計畫中英文摘要：請就本計畫要點作一概述，並依本計畫性質自訂關鍵詞。

(二) 計畫英文摘要。(五百字以內)

As the popularity of personal computers and the flourishing development of information technologies, people have created more and more dependence on the internet. The internet service has played an important role in everyday life. Being lack of proper standards and awareness, however, the internet services are usually misused and even bring cyber crimes to infringe upon the lawful rights of others. In order to protect the intellectual property rights and maintain the information security, the research on information hiding algorithms have sprung up.

In prior years, many steganographic and watermarking algorithms have been researched. However, they often use digital multimedia data, such as still image, moving image, audio and video, as cover media to embed the secret message. Recently, with the development of various 3D applications, such as in the computer animation and 3D laser scanning techniques, the use of three-dimensional models in information hiding techniques has gradually attracted attention.

The emphasis for current 3D steganographic algorithms are mostly on high data capacity, low distortion and correct data extraction. It would be much better to support both polygonal models and point geometries. However, the disadvantage of them is the same data capacity for each vertex in the 3D models. Embedding the same capacity in the vertex located on the surface with different properties may cause the obvious distortion and thus obey the initial goal of the information hiding techniques.

To remedy the above problem, in this project, we propose a 3D steganographic algorithm, which integrates the key points of current techniques, the geometric characteristics and human visual system to develop a new and adaptive one. According to the different surface properties that each vertex is located on, the different amount of secret message is embedded. Thus, the important shape features will be preserved and the visual distortion between cover and stego model will be much smaller. We believe that steganography on 3D models with adaptability will do a great contribution to the area of 3D information hiding.

Keywords: 3D Models, Data Hiding, Adaptability, Human Visual System