以單模矩陣加速醫學影像安全傳輸

Acceleration of the Encryption of Digital Medical Image

中文摘要

應用數位醫學影像來加強影像的辨識度,提供最清晰的影像給醫生.再應用 PACS 的概念,方便醫生取得影像,方便醫生盡快做出診斷,爭取第一醫療時機.在醫學影像傳輸時,醫學影像爲保存其高解析度及辨識度,影像資料量將十分龐大,而在傳遞資料時也需要做加密傳輸以確保醫學資料之秘密性,爲此而提出此研究縮短加密時所耗費的時間.醫學影像的傳輸本已相當耗費時間,且對醫療資訊系統將是一大負擔.再加上對影像的壓縮,加密,解密動作,醫學影像主機的負擔與所耗損的時間都相當大.若是多人同時連線欲取得影像,主機將有可能不堪負荷,以致於所有動作都將減速,甚至停擺.若能在影像加密時爭取時間差,當多人同時連線欲取得影像時,將會有明顯的效果使加密的時間縮短,減少負擔.快速取得影像,可讓醫師在最迅速的時間考慮病人的各種資料,以方便在最短時間內做出最正確的診斷.而病人也可以在最短時間內獲得醫療.

英文摘要

The hospital digitalization makes all doctors got more quick and efficient work. Digital image transits for end to end to doctors for diagnosis or other purpose at 1'st step, this need time control. So big as digital image data for transits is already wasting time, now we need to maintain security issue too, so it waste more time to have security procedure as encryption, water marking, digital signature…

At our encryption, we have use all now a day encryption techniques and make use of unimodular mathematical algorithm for our architecture of digital image data. Now, we announce new algorithm for faster encryption to only digital images and should makes doctors have their information at most first time.