

## (二) 計畫英文摘要。(五百字以內)

Information hiding is a popular research topic. The basic concept of information hiding embeds secret data into meaningful multimedia data, such as videos and images. Among all information hiding, Mielikainen's method has high embedding capacity (1 bpp) and acceptable embedding efficiency. On the other hand, Matrix Coding method has high embedding efficiency but low embedding capacity ( $3/7$  bpp). In this proposal, we are going to propose two subjects that modify those two methods to improve both embedding capacity and embedding efficiency.

In the first subject, we modify Mielikainen's method to further improve its embedding efficiency. Mielikainen proposed the LSB matching revisited to do information hiding. The method first groups cover pixels into pixel pairs. For each pair, at most one pixel is needed to be modified by adding/subtracting its value to/from one, and two secret bits are able to be embedded into two cover pixels. However, it can further reduce the number of modified pixels. The proposed method applies the function called XOR Function to link all bits of cover pixels. The modifications are happened only when the resultant bits of XOR Function are different from secret bits.

In the second subject, we modify Matrix Coding method to further improve its embedding capacity and embedding efficiency. Although the original Matrix Coding method has high embedding efficiency, its embedding capacity is only  $3/7$  bpp. The proposed method modifies the original method to increase its embedding capacity to  $3/4$  bpp.