# Problem Session CMSE-492 “Selected topics in Software Engineering II” 09.06.2021

1. Reversible data hiding by difference expansion.
   1. Getting integer average and difference from a pixel pair
   2. Inverse transformation (integer average, difference)=> (x,y)
   3. Expandable difference
   4. Changeable difference
2. Data hiding by EMD

Image=(198 201 216 149 156 119 107 30 14 11 120 13), n=4, L=12

* 1. K=?
  2. Embed hexadecimal data S=(1a 2b 3c 4d 5e 6f), get stego image.
  3. Extract data from the stego image

1. SPAM steganalysis

Consider image

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| 8 | 7 | 6 | 5 |
| 9 | 10 | 11 | 12 |
| 16 | 15 | 14 | 13 |

* 1. Find D=> . What is the size of D=>?
  2. M=> for T=3. What is the size of M=>?
  3. What other directions are used in SPAM
  4. How the first half of the 1st order features is calculated?
  5. How the second half of the 1st order features is calculated?

1. RS steganalysis
   1. For the image from Task 2, using 2x2 groups, calculate
      1. R%,
      2. S%,
      3. U%
2. Pixel value histogram
   1. For the image from Task 3, calculate pixel value histogram;
   2. Write a pseudo code for a pixel value histogram calculation
3. Pixel value difference histogram
   1. For the image from Task 4, calculate pixel value difference histogram;
   2. Write a pseudo code for a pixel value difference histogram calculation