CMSE492 Seminar on EMD 28.03.2019

1. Consider EMD method [1] with n=3
2. Consider the grayscale image, I, below having 2 rows and 8 columns:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Col1 | Col2 | Col3 | Col4 | Col5 | Col6 | Col7 | Col8 |
| Row1 | 0 | 100 | 105 | 10 | 21 | 31 | 255 | 121 |
| Row2 | 251 | 136 | 19 | 22 | 21 | 20 | 159 | 183 |

1. Let secret bit stream , bs, in hexadecimal is as follows: A0 B1 C2 D3 A1 B1 C1 D1 A2 B2 C2 D2 A B3 C3 D3
2. Convert the binary stream, s, into (2n+1)-ary digit stream, ds, using (1) from [1] assuming L=16.
3. Embed ds into I getting stego image, SI
4. Extract secret data from SI, and convert them into binary. Check that the data extracted match the data embedded
5. Your homework and participation in the seminar will be graded (50% +50%)

References

1. X. Zhang and S. Wang, Efficient Steganographic Embedding by Exploiting Modification Direction, IEEE COMMUNICATIONS LETTERS, VOL. 10, NO. 11, NOVEMBER 2006, 781-783, <https://staff.emu.edu.tr/alexanderchefranov/Documents/CMSE492/ZhangIEEECL2006.pdf>