

## **Supplementary Material S2: Additional Experimental Results (Expanded)**

### **1. Performance Results Table**

| Model | Accuracy (%) | Entropy | NPCR (%) | UACI (%) |
|-------|--------------|---------|----------|----------|
| LR    | 88.4         | 7.41    | 96.2     | 33.41    |
| RF    | 92.7         | 7.58    | 97.1     | 33.89    |
| CNN   | 95.1         | 7.63    | 97.9     | 34.11    |
| SVM   | 96.4         | 7.71    | 98.6     | 34.56    |

### **2. Visual Results (Representative)**

Representative original vs encrypted images and sensitivity maps are included to visually demonstrate the effectiveness of the proposed ML-SEI framework. Encrypted images exhibit uniform histograms and no perceptible semantic leakage.