LIST OF FIGURES

| 2.1 | An example of LSB replacement method | 8 |
|------|---|----|
| 2.2 | Turtle shell-based reference matrix T | 9 |
| 2.3 | Turtle shell-based reference matrix M | 10 |
| 3.1 | Flowchart of the Overall Watermarking Process | 15 |
| 4.1 | Seven 256×256 grey-scale images and their watermarked images . | 24 |
| 4.2 | Original Image and Watermarked Image Peppers in Red Channel | 26 |
| 4.3 | Effect of Gaussian Noise Attack (0.05) | 32 |
| 4.4 | Watermark Robustness to Gaussian Noise Attack on seven host Im- | |
| | ages | 33 |
| 4.5 | Effect of Salt & Pepper Noise Attack (0.04) | 34 |
| 4.6 | Watermark Robustness to Salt and Pepper Noise Attack on seven | |
| | host Images | 36 |
| 4.7 | Effect of Compression Attack (40) | 37 |
| 4.8 | Watermark Robustness to Compression on seven host Images | 38 |
| 4.9 | Effect of Low Pass Filter Attack (11 x 11) | 39 |
| 4.10 | Watermark Robustness to Compression on seven host Images | 40 |
| 4.11 | Effect of Rescaling Attack (0.25) | 41 |
| 4.12 | Watermark Robustness to Rescaling on seven host Images | 43 |
| 4.13 | Effect of Speckle Noise Attack (0.01) | 44 |
| 4.14 | Watermark Robustness to Speckle on seven host Images | 45 |
| 4.15 | Effect of Median Filter Attack (7) | 46 |
| 4.16 | Watermark Robustness to Median Filter on Seven Host Image | 47 |
| 4.17 | Comparison of Watermark Bit Length and BER in Gaussian Noise | |
| | Attack | 48 |
| 4.18 | Comparison of Watermark Bit Length and BER in Compression At- | |
| | tack | 49 |
| | | |