Comparative Results of different image scrambling on PSNR, MSE, NCC, AD, SC and MD parameters for different images.

(1). PSNR comparison

Image name	Technique Name			
	Arnold scrambling	Hilbert quantum image scrambling	Circular shifting and swapping operation	Hyperchaotic System and Fibonacci Q-Matrix
Peppers	9.6332	9.6623	10.7170	8.2202
Lenna	10.9247	10.8745	10.7650	8.6510
Goldhill	11.2271	12.2816	11.8415	9.0199
Cameraman	9.2693	9.4286	9.2019	8.3834
Baboon	11.7828	12.0582	12.0667	8.2447
Flower	8.1486	8.2380	12.1972	7.4758
Average PSNR	**10.1643**	**10.4238**	**11.13155**	**8.3325**

(2). MSE comparison

Image name	Technique Name			
	Arnold scrambling	Hilbert quantum image scrambling	Circular shifting and swapping operation	Hyperchaotic System and Fibonacci Q-Matrix
Peppers	407339016	404615676	317377541	563964853
Lenna	302555017	306075190	313885616	510711749
Goldhill	321258846	251998999	278878038	534037665
Cameraman	504234185	194431000	512118622	247340000
Baboon	202818022	190354203	189982691	458058865
Flower	592699569	585407784	233330419	665389943
Average MSE	**388484109.2**	**322147142**	**307595487.8**	**496583845.8**

(3). NCC comparison

Image name	Technique Name			
	Arnold scrambling	Hilbert quantum image scrambling	Circular shifting and swapping operation	Hyperchaotic System and Fibonacci Q-Matrix
Peppers	0.8225	0.8249	0.8626	0.7089
Lenna	0.8669	0.8670	0.8641	0.7263
Goldhill	0.8344	0.8713	0.8578	0.6572
Cameraman	0.7826	0.7919	0.7806	0.6935
Baboon	0.9034	0.9107	0.9112	0.7164

Flower	0.6981	0.7029	0.8816	0.6012
Average NCC	**0.8180**	**0.8282**	**0.8597**	**0.6840**

(4). AD comparison

Image name	Technique Name			
	Arnold scrambling	**Hilbert quantum image scrambling**	**Circular shifting and swapping operation**	**Hyperchaotic System and Fibonacci Q-Matrix**
Peppers	-0.0259	-0.0386	-0.0011	-6.3661
Lenna	-0.0032	-0.0024	-0.0014	-3.4187
Goldhill	0.0083	-0.0008	-0.0018	-15.3452
Cameraman	-0.1060	-0.0446	-0.0004	-9.0377
Baboon	0.0204	-0.0090	-0.0004	-5.5005
Flower	0.0051	-0.0076	-0.0004	-24.6203
Average AD	**-0.016883333**	**-0.017166667**	**-0.000916667**	**-10.71475**

(5). SC comparison

Image name	Technique Name			
	Arnold scrambling	**Hilbert quantum image scrambling**	**Circular shifting and swapping operation**	**Hyperchaotic System and Fibonacci Q-Matrix**
Peppers	0.9944	0.9981	0.9996	0.8136
Lenna	0.9940	0.9983	0.9996	0.8108
Goldhill	0.9936	0.9986	0.9990	0.6884
Cameraman	0.9948	0.9992	0.9997	0.8213
Baboon	0.9942	0.9980	0.9989	0.7540
Flower	0.9933	0.9986	0.9997	0.6911
Average SC	**0.9940**	**0.9985**	**0.9995**	**0.7632**

(6). MD comparison

Image name	Technique Name			
	Arnold scrambling	**Hilbert quantum image scrambling**	**Circular shifting and swapping operation**	**Hyperchaotic System and Fibonacci Q-Matrix**
Peppers	229	227	206	231
Lenna	202	206	196	236
Goldhill	229	227	212	235
Cameraman	253	249	244	250
Baboon	184	195	193	197
Flower	223	217	210	239
Average MD	**220**	**220.1667**	**210.1667**	**231.3334**