Quasi Random Numbers

- For some applications pseudo random numbers are a little too random.
- Some portions of the domain are relatively under sampled and other portions are over sampled.
- Quasi Random number generators maintain a uniform density of coverage over the entire domain by giving up serial independence of subsequenctly generated value in order to obtain a uniform coverage of the domain.

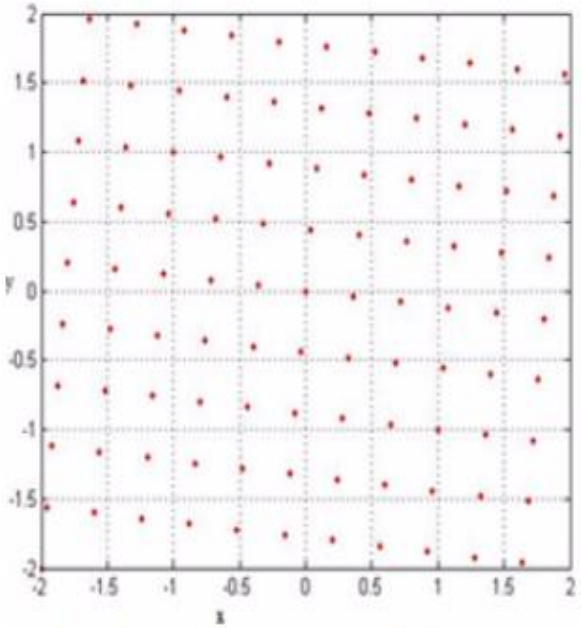


Fig-1a:Quasi-random distribution

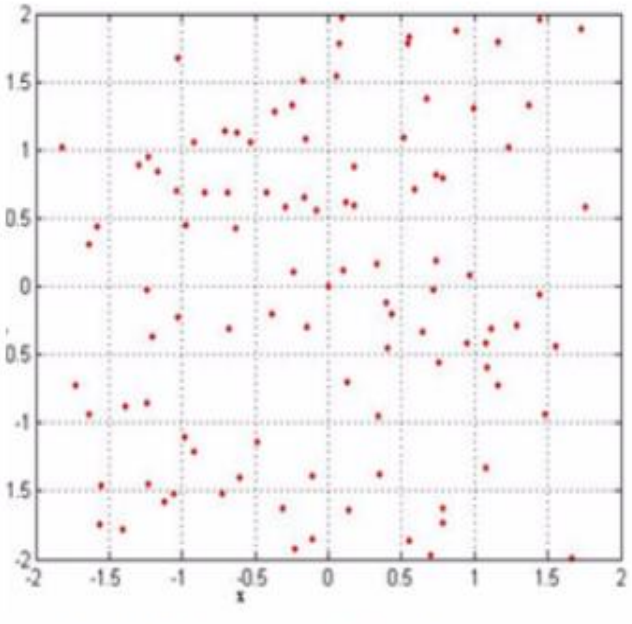
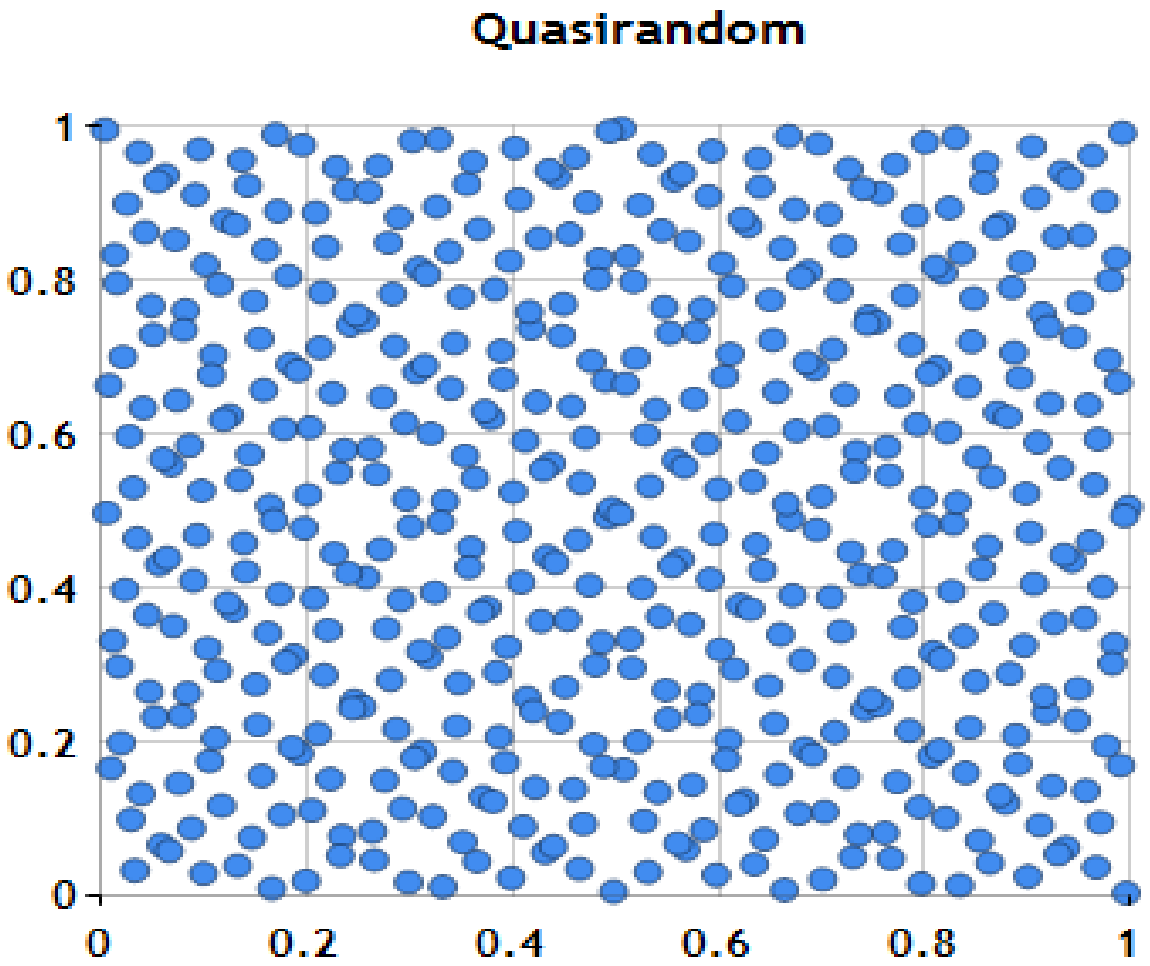
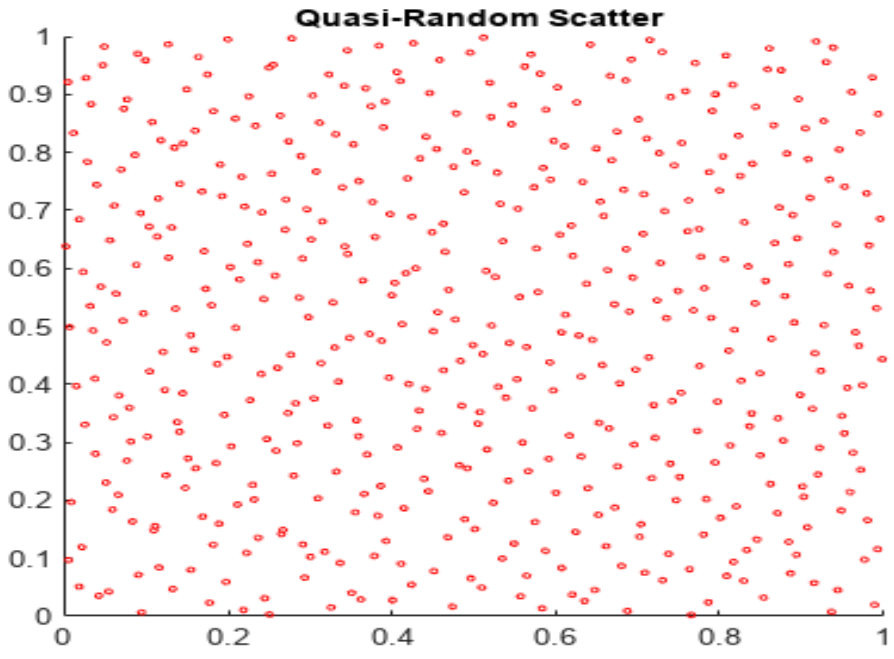


Fig-1b:Pseudo-random distribution


Quasirandom
1
0.8
0.6
0.4
0.2
0
0
0.2
0.4
0.6
0.8
1


Quasi-Random Scatter
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.2
0.4
0.6
0.8
1

	Pseudo-random	True-random
Approach	Algorithm of mathematical formula, later translated into relatively bits of programming code	Extract randomness from physical phenomena and introduce it into a computer
Efficiency	Fast responses in generating numbers	Slow responses in generating numbers
Determinism	Sequence of numbers can be reproduced	Sequence of numbers cannot be reproduced
Periodicity	Sequence of numbers is repeated	Sequence of numbers will or will not repeated