Abstract :

The purpose of this paper is to use a hybrid Taguchi-genetic algorithm to optimize the capacity of MIMO systems with different linear array geometrical configurations at both communication ends (Transmitter and Receiver). The method combines the traditional genetic algorithm, known to have a powerful global exploration capability, and the Taguchi method, which can exploit the optimum offspring and thus, enhance the genetic algorithm. The idea is to use the spatial channel model where the effect of mutual coupling is considered. Each array geometrical configuration has its own contribution in the total channel matrix depending on its physical parameters. The end result is to find out which combination(s) produce the highest capacity value.