

Table 10 Applications of GA

Broad Area	Sub-domain	Target Problems	Variants of GA
Operation Management	Facility layout Design	Static facility layout problem	GA, MOGA, Parallel GA, Hierarchical GA
		Dynamic facility layout problem	
		Flexible bay structure	
	Supply network design	Multi-product, multi-period	GA, NSGA-II, GA + PSO, MOGA, GA + Fuzzy
		Multi-product, single-period	
	Scheduling	Single-product, single-period	GA, GA + BB, GA + ABC, GA + Local search, MOGA, NSGA-II, Hierarchical GA
		Vehicle routing	
		Resource sharing and scheduling	
		Machine scheduling	
	Forecasting	Airline flight scheduling	GA, Chaotic GA, Adaptive GA, GA + NN
		Financial trading	
Multimedia	Information Security	Tourism demand	GA, NSGA-II
		Healthcare demand	
		Inventory-routing	
	Image Processing	Lot sizing	GA, Parallel GA, NSGA-II, NSGA
		Location-inventory routing	
		Encryption	
	Video Processing	Watermarking	GA, NSGA-II, Parallel GA, Hybrid GA, Adaptive GA, Chaotic GA
		Segmentation	
		Enhancement	
	Medical Imaging	Object detection	GA, NSGA, Adaptive GA, Hybrid GA
		De-noising	
		Recognition	
	Precision Agriculture	Video segmentation	GA, Hybrid GA, Parallel GA, Sequential GA
		Gesture recognition	
		Face recognition	
Wireless Networking	Gaming	Tumor diagnosis	GA, Hybrid GA, NSGA
		COVID-19 diagnosis	
		Bioinformatics	
	Wireless mesh networks	Weed detection	GA, Sequential GA, MOGA
		Crop management	
		Water irrigation	
	Mobile Ad-hoc networks	Google Chrome dinosaur	MOGA, GA + Fuzzy Logic, NSGA, GA + ACO, NSGA-II
		Chess	
		Strategic games	
	Wireless sensor networks	Routing	MicroGA, MacroGA, Distributed GA
		Quality of Service	
		Load balancing	
		Localization	MicroGA, GA + SA, GA + Fuzzy Logic
		Bandwidth allocation	
		Channel assignment	
			GA, Distributed GA, GA + Local search, GA + Greedy Algorithms, MOGA
			MOGA, Parallel GA, Distributed Island GA