		Entity State							Population State			
	notes	Represents the candidate solution	Is analogous to the negative gradient	Is analogous to velocity			Goes hand in hand with gradient and thus also velocity	Goes hand in hand with gradient^2 and thus also acceleration				
heuristic	**hyper-parameter**	**position**	**velocity**	**gradient**	**sum of gradients squared**	**expected position delta variance**	**expected gradient mean (hp1)**	**expected gradient variance (hp2)**	**pbest**	**ibest**	**rbest**	**gbest**
sgd	learning rate	x	x	x	-	-	-	-	-	-	-	x
momentum	learning rate, momentum (maps to hp1)	x	x	x	-	-	x	-	-	-	-	x
nag		x	x	x	-	-	x	-	-	-	-	-
adagrad	learning rate, epsilon	x	x	x	x	-	-	-	-	-	-	x
rmsprop	learning rate, rho (maps to hp2), momentum (maps to hp1), epsilon	x	x	x	-	-	-	x	-	-	-	x
adadelta	rho (maps to hp2), epsilon	x	x	x	-	x	-	x	-	-	-	x
adam	learning rate, momentum (maps to hp1), rho (maps to hp2)	x	x	x	-	-	x	x	-	-	-	x
PSO	W, C1, C2	x	x	o	-	-	-	-	x	o	-	x
DE		x	o	o	-	-	-	-	-	o	-	x
GA	mutation rate	x	o	o	-	-	-	-	-	-	-	x
BHH	burn in, replay window size, population size, reselection, reanalysis window size, normalisation, discounted rewards	x	x	x	x	x	x	x	x	x	x	x