
Aptavia

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APTAVIA.TUNERS

1.1 aptavia.tuners.GeneticTuner module

class aptavia.tuners.**GeneticTuner** (*population_size=100, mutation_probability=0.2, fitness_function=None*)

Bases: object

A PID Tuner using a genetic algorithm.

Parameters

- **population_size** (*int, optional*) – How many random PID-Controllers are in the population, defaults to 100
- **mutation_probability** (*float, optional*) – The probability of a gain of a PID-Controller in the population randomly changing, defaults to 0.2
- **population** (list of `simple_pid.PID`) – A list of PID-Controllers that are tuned when `aptavia.tuners.GeneticTuners.step()` is called.
- **fitness_function** (*function, optional*) – A function that evaluates the fitness of one PID-Controller, defaults to None

set_fitness_function (*fitness_function*)

Setter for `fitness_function`

Parameters **fitness_function** (*function*) – A function that evaluates the fitness of one PID-Controller

set_mutation_probability (*mutation_probability*)

Setter for `mutation_probability`

Parameters **mutation_probability** (*float*) – The probability of a gain of a PID-Controller in the population randomly changing

set_population (*population*)

Setter for the population

Parameters **population** (list of `simple_pid.PID`) – A list of PID-Controllers

set_population_size (*population_size*)

Setter for `population_size`

Parameters **population_size** (*int*) – How many random PID-Controllers are in the population

step (*num_generations=1*)

Performs the genetic algorithm over a specified number of generations

Parameters `num_generations` (*int*, *optional*) – The number of generations to tune, defaults to 1

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