

SimulatedAnneal Class Reference

Public Member Functions

SimulatedAnneal ()

double **getRandomNumber** (double i, double j)

double **getProbability** (int difference, double **temperature**)

std::vector< double > **saNeighbour** (double ang1, double ang2, double ndist)

std::vector< double > **newsaNighbour** (double ang1, double ang2, double ndist)

void **StartAnneal** ()

Public Attributes

double **min_A1**

double **min_A2**

double **max_A1**

double **max_A2**

double **unrchbl_cost**

int **diff**

double **A1_init**

double **A2_init**

double **temperature**

double **coolingRate**

double **absoluteTemperature**

double **probability**

double **ned**

Detailed Description

Author: Poulastya Mukherjee Description: Class Implementation for Simulated Annealing Based Optimization Inputs: Annealing Parameters Output: Optimized Angles

Constructor & Destructor Documentation

◆ SimulatedAnneal()

SimulatedAnneal::SimulatedAnneal ()

inline

Author: Poulastya Mukherjee Description: Constructor for Simulated Annealing algorithms Inputs: None
Output: Initialized Parameters

Member Function Documentation

◆ getProbability()

```
double SimulatedAnneal::getProbability ( int    difference,  
                                         double temperature  
                                         )
```

inline

Author: Poulastya Mukherjee Description: Probability implementation for Simulated Annealing algorithms
Inputs: Difference in cost value and temperature Output: Probability of acceptance

◆ getRandomNumber()

```
double SimulatedAnneal::getRandomNumber ( double i,  
                                           double j  
                                           )
```

inline

Author: Poulastya Mukherjee Description: Random Number implementation for Simulated Annealing
algorithms Inputs: 2 integers Output: Random Number between 2 integer inputs

◆ newSaNeighbour()

```
std::vector<double> SimulatedAnneal::newsaNeighbour ( double ang1,  
                                                    double ang2,  
                                                    double ndist  
                                                    )
```

[inline](#)

Author: Poulastya Mukherjee Description: New neighbor selection implementation for Simulated Annealing algorithms Inputs: New Generated Neighbor Output: Verifies whether neighbor already exists or not and automatically generates new neighbor if already existing

◆ saNeighbour()

```
std::vector<double> SimulatedAnneal::saNeighbour ( double ang1,  
                                                    double ang2,  
                                                    double ndist  
                                                    )
```

[inline](#)

Author: Poulastya Mukherjee Description: Neighbor selection implementation for Simulated Annealing algorithms Inputs: Joint Angle1, Joint Angle2 and Radius Output: Randomly Selects a neighbor using Euclidian Distance

◆ StartAnneal()

```
void SimulatedAnneal::StartAnneal ( )
```

[inline](#)

Author: Poulastya Mukherjee Description: Class implementation for Simulated Annealing algorithms Inputs: Starts the Simulated Annealing Algorithm using the parameters set Output: Returns the final joint angle values

Member Data Documentation

◆ A1_init

double SimulatedAnneal::A1_init

initial value of joint angle1 of table to be read from Technology Model file

◆ A2_init

double SimulatedAnneal::A2_init

initial value of joint angle2 of table to be read from Technology Model file

◆ absoluteTemperature

double SimulatedAnneal::absoluteTemperature

value of absolute temperature parameter for Simulated Annealing, used as exit criteria

◆ coolingRate

double SimulatedAnneal::coolingRate

value of cooling rate temperature parameter for Simulated Annealing

◆ diff

int SimulatedAnneal::diff

Cost Difference between next and current state

◆ max_A1

double SimulatedAnneal::max_A1

Maximum value of joint angle1 of table input from Technology Model File

◆ max_A2

double SimulatedAnneal::max_A2

Maximum value of joint angle2 of table input from Technology Model File

◆ min_A1

double SimulatedAnneal::min_A1

Minimum value of joint angle1 of table input from Technology Model File

◆ min_A2

double SimulatedAnneal::min_A2

Minimum value of joint angle2 of table input from Technology Model File

◆ ned

double SimulatedAnneal::ned

radius size for neighbour selection

◆ probability

double SimulatedAnneal::probability

probability value to test fitness of new state

◆ temperature

double SimulatedAnneal::temperature

initial value of temperature parameter for Simulated Annealing

◆ unrchbl_cost

double SimulatedAnneal::unrchbl_cost

Cost Value for states which are unreachable

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