

LIST OF NOTATIONS

Symbols	Definition
r_{ij}	Distance between two fireflies
X_i	The vector representing the position of the i-th firefly
X_j	The vector representing the position of the j-yh fireflies
$\ X_i - X_j\ $	The difference between the vector
$\sum_{d=1}^D$	The summation over the index d
x_{id}	The dimension coordinate of the vector X_i
x_{jd}	The dimensioncoordinate of the vector X_j
$(x_{id} - x_{jd})^2$	The squared difference between the vectors
$x_{id}(t + 1)$	The position of i-th firefly and d-th firefly
$x_{id}(t)$	Current position of the i-th firefly
$\beta(r_{ij})$	The attractiveness between the fireflies
$x_{jd}(t)$	The position of j fireflies in the dimension
$(x_{jd}(t) - x_{id}(t))$	The difference in position between the j-th and i-th fireflies
$\alpha\varepsilon_i$	Randomization factor
I_h	Entropy of the dataset
$\sum_{j=1}^c$	Summation for each class
c	The number of classes
P_j	Proportion of instances
$\log_2 p_j$	The logarithm of the probability
$IG(S,A)$	Information gain
$H(S)$	Entropy
$\sum_{p \text{ values}(A)}$	Summation to all possible values of an attribute
$ S_p $	The number of elements in the subset
$ S $	The number of elements in the entire set S
$\frac{ S_p }{ S }$	The proposition of the subset S_p to the entire set S
$H(S_p)$	The entropy of the subset S_p