

LIST OF NOTATIONS

Symbols	Definition
V	Vertex set $\{v_0, v_1, \dots, v_n\}$
E	Edge set $\{(v_i, v_j) v_i, v_j \in V, i \neq j\}$
v_i	Vertex i (hotel if $i = 0$, POI if $i \geq 1$)
S	User's desired hotel and POIs set
D	Travel day set
Q	Daily travel duration limit
Q_0	Departure time
Q_1	Time limit for returning to hotel
o_i	Opening hour of v_i
c_i	Closing hour of v_i
N	Maximum number of travel days
t_{ij}	Travel time from v_i to v_j
wt_i	Waiting time at v_i
s_i	Time spent on v_i
at_i	Arrival time at v_i
$rating_i$	Rating of v_i
$cost_i$	Cost of v_i
T	Total travel duration
T_d	Travel duration on day d
x_i	Value of attribute i
$x_{i_{max}}$	Maximum value of attribute i
$x_{i_{min}}$	Minimum value of attribute i
$x_{i_{norm}}$	Normalized value of attribute i
$U(x)_{norm}$	Multi-Attribute Utility Theory (MAUT) value with the normalized attributes
w_i	Degree of interest (DOI) of attribute i
q_0	Probability parameter for transition rule in Ant Colony System (ACS)
$J_k(i)$	The subset of set V that is still possible to be visited by ant k
τ_{ij}	Pheromone concentration along the path from v_i to v_j
η_{ij}	Heuristic value from v_i to v_j , equivalent to $U_j(x)_{norm}$
$U_j(x)_{norm}$	MAUT value for v_j considering attributes such as the cost and rating of v_j , along with the travel time from v_i to v_j
αt	Relative influence of τ_{ij}
β	Relative influence of η_{ij}

Symbols	Definition
ρ	Pheromone evaporation rate within the range of [0,1] for local pheromone update
$U(x)_{norm_k}$	Fitness value by ant k
α	Pheromone evaporation rate for global pheromone update
$U(x)_{norm_{best}}$	Fitness value for the best solution