



TABLE II  
LIST OF MAJOR NOTATIONS USED IN THE PAPER

LIST OF ACRONYMS

Dec-POMDP	decentralized partial observable Markov decision process.
DQN	deep Q-network.
EM-Patroller	Entropy Maximized Patroller.
KL divergence	Kullback–Leibler divergence.
MC	Markov chain.
MFPT	mean first-passage time.
MLP	multi-layer perceptron.
MRS	multi-robot system.
MRSs	multi-robot systems.
mTSP-SC	multiple travelling salesman problem with spectral clustering.
MuRP	multi-robot patrolling.
R2C	robot-to-center.
R2E	robot-to-environment.
R2R	robot-to-robot.
RT	return time.
SLAM	simultaneous localization and mapping.
TSP	travelling salesman problem.
UAV	unmanned aerial vehicles.
w-NC	weighted node counting.

Notations	Descriptions
$\mathcal{N}$	number of mobile robots
$\mathcal{G}(\mathcal{V}, \mathcal{E})$	transportation network with nodes $\mathcal{V}$ and edges $\mathcal{E}$
$\mathcal{V}$	set of nodes, $ \mathcal{V}  = n$
$\mathcal{E}$	set of edges, $ \mathcal{E}  = m$
$i$	robot index, $i \in \mathcal{N}$
$s$	node index, $s \in \mathcal{V}$
$\mu_i$	individual steady distribution of robot $i$
$\mu(s)$	node coverage probability
$\lambda(s)$	node coverage frequency
$\pi_i$	policy of robot $i$
$J$	unnormalized entropy
$\theta_i$	policy parameters of robot $i$
$P$	state transition matrix
$T_{max}$	max training epochs
$\alpha$	learning rate
$\mathcal{O}$	computational complexity
$h$	number of hidden nodes in MLP
$d$	number of hidden layers in MLP
$J_r$	auxiliary object for robustness
$\alpha_r$	weights of robustness auxiliary object
$J_s$	auxiliary object for softness
$\alpha_s$	weights of softness auxiliary object
$\gamma$	decay rate of Q network
$\epsilon$	exploration parameter
$K$	number of episodes