Recent research has demonstrated the effectiveness of conditional entropy as an objective function for sensor management problems. This is because the cost of communicating between sensors is assumed to be related to the distance between the sensors, with the cost of communicating between the sensors being proportional to the distance between the sensors. This means that the cost of communicating between sensors increases as the distance between the sensors increases.

In order to accommodate the substantial nonlinearity of the quasi-range measurement, we employ a practical approximation of the subgradient method, which plans using a single value of the cost-to-go for each sensor at each time step. This approximation allows us to use the computationally convenient method described above with a more meaningful setting for the cost-to-go.

We must then evaluate the cost-to-go from each new DP state, which in turn requires the same procedure as before. This means that the planning horizon must be set to a higher value than the planning horizon used in the previous section of the paper, which is consistent with the cost-to-go being less than a certain value.

The information-constrained formulation allows for an additional saving in communication cost while meeting the information constraint. In the information-constrained case (which uses a minimum entropy constraint), increasing the horizon length reduces the communication cost. However, this comes at the expense of a smaller estimation performance.

The information-constrained formulation is similar to the information-constrained formulation in the previous section, but with the additional constraint that the sensor subsets should be chosen to satisfy the information constraint. This is done by solving a subproblem that finds the optimal sensor subset for a given horizon length, and then selecting the sensor subset that satisfies the information constraint.

Results

The planning horizon was set to 10 and 20 time steps, the communication constraint is the maximum length of the planning horizon, and the number of sensors is 20. The results show that the greedy sensor selection method performs better than the information-constrained formulation, but that the information-constrained formulation performs better than the greedy sensor selection method.

The results also show that the information-constrained formulation is more robust to changes in the horizon length, and that the greedy sensor selection method is more robust to changes in the communication constraint.

Adaptive dual is better for the information-constrained formulation. This is because the adaptive dual allows the planner to adjust the communication constraint on-line, while the greedy sensor selection method requires the communication constraint to be set in advance.

Dual is better for the information-constrained formulation. This is because the dual allows the planner to adjust the communication constraint on-line, while the greedy sensor selection method requires the communication constraint to be set in advance.

Adaptive dual is better for the information-constrained formulation. This is because the adaptive dual allows the planner to adjust the communication constraint on-line, while the greedy sensor selection method requires the communication constraint to be set in advance.