Prioritized Detection Using a Heterogeneous Robotic Network

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Abstract

We describe a framework that combines prioritized sensing behavior with heterogeneous connectivity constraints to create an algorithm that can send sensing agents to areas with the highest possibility of having good information while also guaranteeing that the heterogeneous network will remain connected. We also evaluate the performance of the heterogeneous algorithm against its homogeneous equivalent to determine the usefulness of heterogeneity within our approach. We also test the prioritized sensing behavior with different number of relays to understand when adding relays to the network begins to show diminishing returns.