



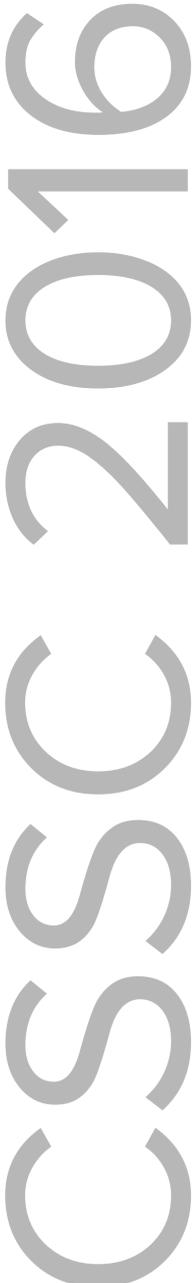
RESEARCH PRESENTATION

Matthew Fricke

Student Union Building, Ballroom A

Thursday, April 7, 2016 1:30 pm - 1:50 pm

A Distributed Deterministic Spiral Search Algorithm for Swarms



As robot swarms become more viable, efficient solutions to fundamental tasks such as swarm search and collection are required. We propose the distributed deterministic spiral algorithm (DDSA) which generalises a spiral search pattern to robot swarms. While being an effective search strategy in its own right, the DDSA is also a useful point of comparison for other swarm search strategies. Such a benchmark for robot swarm search is currently needed but missing. As a case study, we compare the DDSA to a biologically-inspired central-place foraging algorithm that uses stochastic search, memory, and communication to efficiently collect resources in a variety of different resource distributions.