Visibility-Based Pursuit-Evasion in the Plane

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Abstract

The speed at which robots begin to enter various application domains is now largely dependent on the availability of robust and efficient algorithms that are capable of solving the complex planning problems inherent to the given domain. This talk will present a line of research that makes progress towards solving some of the complex planning problems found in target tracking applications where a robot or team of robots seeks to locate and follow a group of moving targets. First, I will describe an algorithm for computing the optimal searcher motion strategy when there exists just a single searcher. Second, I will discuss the multiple searcher scenario and present a deterministic and sampling-based algorithm that coordinates the motion of the searchers. The overall theme is that the design and implementation of robust and efficient planners is imperative for robots to manage the complex tasks we envision for them.

Bio

Nicholas Stiffler is a Ph.D. candidate in the department of Computer Science and Engineering at the University of South Carolina. His research focuses on the design and implementation of planners for a variety of complex robotic planning problems. He received his M.S. (2012) and B.S. (2009) degrees from the University of South Carolina.