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Title: Optimization Challenges in Mobile Multi-Agent Systems

Abstract: Teams of physical mobile agents, capable of peer-to-peer communication, are often required to select paths for their movement, without colliding with their teammates. These types of requirements motivate my Ph.D. study. Typically, such problems are solved centrally. However, centralization may not be possible or can be costly and may delay execution. In our research, we offer reliable solutions to such multi-agent systems. (1) We enhance existing Multi-Agent Pathfinding (MAPF) solutions with improved collision-avoidance techniques. (2) We address collision avoidance in a classical Distributed Constraint Optimization Problem (DCOP) framework. (3) And, finally, we translate MAPF problems into a DCOP framework and propose new approaches.

Bio: Arseni Pertzovskiy is a Ph.D. candidate in the Department of Industrial Engineering and Management (IEM) at Ben-Gurion University of the Negev, Israel. He received his B.A. and M.Sc. in the IEM Department at Ben-Gurion University as well. His research interests include planning in AI, multi-agent & multi-robot systems, and distributed optimization.