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A 2-Dimensional ACO-based Path Planner for Off-line Robot Path Planning

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Abstract

Path planning is one of the most discussed problems in mobile robotics. It can be defined as an optimization process in which the path between two points needs to be decided such that predefined requirements are satisfied. In most of the previous solutions to path planning problem, these requirements are limited to path length only. However, in most of the real world scenarios, the shortest path between two points may not be the most desirable path. Such a path between two points has to be optimized based on the user defined requirements and environmental conditions. Given the landscape of a terrain, the mobile platforms should be able to reach the target position using a desirable path. In this talk, an off-line robot path planner is introduced to find desirable paths between arbitrary points in a given terrain. The proposed path planner is based on ACO algorithms. Unlike ordinary ACO algorithms, the proposed path planner provides its artificial ants with extra flexibility in making routing decisions.

About the Speaker

Nuwan Ganganath received his M.Sc. degree in electrical and computer engineering from the University of Calgary, Canada, in 2013 and his B.Sc. degree in electronics and telecommunication engineering from the University of Moratuwa, Sri Lanka, in 2010. Currently, he is a Ph.D. student in the Department of Electronic and Information Engineering in the Hong Kong polytechnic University, Hong Kong. His research interests are in the areas of mobile robotics, artificial intelligence, image processing, and computer vision.

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