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Robot Navigation with a Guide Track

by

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VENUE: **Billings Room 3.04** (3rd Floor)
School of Electrical, Electronic & Computer Engineering
Electrical Engineering Building
The University of Western Australia
Fairway Entrance 2 and 3, Crawley (Perth)

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ABSTRACT:

Curv1, a robot navigation algorithm, was developed to guide a robot to the target in an unknown environment with a single non self-intersecting guide track. In this paper, we expand Curv1 in four different ways. Firstly, self-intersecting track is explored and a new algorithm Curv2 is developed to guarantee termination. Secondly, the question of whether or not Curv1 is the only algorithm capable of guiding the robot is addressed. Thirdly, dynamic obstacles are considered. These obstacles can come and go during the robot's journey. Lastly, multiple start/target pairs and multiple trails are considered. A new algorithm Curv3 is developed to uniquely match start/targets.

The presentation is based on a paper which has been accepted at The Forth International Conference on Computational Intelligence, Robotics and Autonomous Systems in New Zealand.

ABOUT THE SPEAKER:

James Ng is a PhD candidate with the Robotics and Automation Research Group at CIIPS, EECE, UWA, under the supervision of Associate Professor Thomas Bräunl. His research interest is in robot navigation, particularly robot navigation in previously unexplored environments. The algorithms which perform this task are collectively called the Bug Algorithms. These algorithms have various strengths and weaknesses, but a common weakness is the dependence on perfect localization. The aim of his research is to reduce this dependence.