Using Robots for Locating People

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Abstract:

If a disaster occurs it can be dangerous for rescuers to hunt for survivors; there may be perils such as gas, fire, water, or the danger of collapse of unstable buildings. Thus this activity has been of interest to researchers wishing to develop robots that can travel through dangerous regions that may be impassable to humans, or who are developing sensor systems to detect people.

In Oxford we have been working on three areas of research aimed at helping to solve the problem of people detection. Firstly, radio communication can be a problem in disaster situations and there is a problem of how to deploy a group of robots in order to explore an area while getting information back to a central control point. We have developed a method of role-based exploration that passes information back using a series of relay machines, and tested this in the context of a series of competitions under the RoboCup umbrella. Secondly, we have developed a technique that combines information from visual light and infra-red imagery in order to locate people. This technique has been developed with a view to deployment on unmanned aerial vehicles looking for lost people across a large area, but could also be used in small-scale deployments such as disaster areas. And thirdly, we have investigated the use of topographical maps to guide the deployment of vehicles.

This talk will give an overview of our work and results in this area.

About the Speaker:

Prof Cameron gained his doctorate at the University of Edinburgh in 1984, and after a brief period with McDonnell-Douglas he moved to Oxford in 1988. His research interests have focused on spatial reasoning problems, and in particular problems involving robots and basic geometric algorithms. Over the last decade his work has focussed more on robotics applications, including the use of unmanned aerial vehicles, and the possibility of using robots for search and rescue applications. He is a member of the IEEE Robotics and Automation Society, the AISB, and now sits on a number of ISO committees which are preparing standards for robots and robotic devices.

All are welcome!
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