



Semester Thesis / Bachelor Thesis

Collaborative Graph Evacuation

Imagine you are visiting Zurich for the first time with your friends: In the evening, you all want to go to a bar – not necessarily the same one, as you spent too much time with each other anyway. Since you want to explore on your own, you do not buy a map and start walking. After some time, you all found a bar, but you notice that your tour was not quite optimal, you could have ended up in a bar earlier if you knew the layout of the town. Of course no minute exploring Zurich is wasted, but still, how much time would a map have saved you?



In more formal terms, this can be modelled as one of the standard problems in robotics. A set of robots starting at a base (or scattered) has to navigate to one of the exits. If you know the whole graph, then this is much easier than if you start with zero information about the graph.

Currently known algorithms for a single robot without a map have pretty high costs compared to those with a map. However, how much efficiency can be gained if you search in parallel, compared to a single robot who has a map?



By LuvataciuousSkull
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Requirements: An affinity to (graph) theory will be very helpful as the ideas needed to design good algorithms are of a somewhat elaborate theoretical nature. But don't worry, you will meet on a weekly basis with your advisors to discuss progress and open questions.

Interested? Come to our office for coffee and a small chat or contact us by email.

Contact

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