



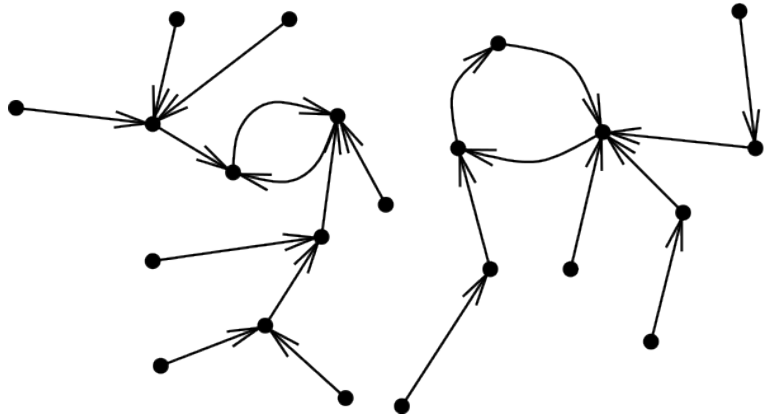
BA/SA:

## Implementing Graph Algorithms for Dynamic Directories

Imagine that a single mobile resource is to be shared among the nodes of a network. The nodes can request the shared resource concurrently and at different times. Our task is to design a protocol to satisfy all the requests, as quickly as possible.

The problem also has numerous applications other than using it to coordinate access to a shared resource. For example, one can use the service to globally order transactions as in a blockchain, where a transaction request can be issued by an arbitrary node at an arbitrary time.

A classic protocol to solve this problem is Arrow protocol. It is simple and requires little computing power and storage. However, it only works well when the network forms a tree. Other state of the art protocols that perform well on general networks require costly global initialization and local storage that is proportional to the size of the network.



The goal of this thesis is to implement a simple Distributed Directory protocol for certain types of networks and find out which algorithms and heuristics work well. We already have plans what to start with, but you are free to come up with your own ideas!

**Requirements:** Interest in designing and implementing graph algorithms in the programming language of your choice. We will have weekly meetings to discuss questions and new ideas.

**Interested? Please contact us for more details!**

### Contacts

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