

## Diploma/Master's Thesis "Gossiping"

One possibility to exchange information in a network is, that each node sends information randomly to some of its neighbors. Such so called *epidemic algorithms* or *gossip protocols* have recently become quite popular. They are used to keep dynamic and large scale distributed systems consistent (at least with high probability) or as updated as desired (according to their size and dynamic changes in the topology).

Our group has implemented a prototype of a distributed, peer-to-peer based system named Clippee. Clippee supports distributed read and modify (create) operations on (small) objects. Up to now, objects are replicated at every node. Clippee's mechanism to keep consistency employs a simple locking scheme combined with a consistency checking background thread.

This thesis is split into two parts: One part is to overview and analyze current gossip protocols as used or suggested elsewhere, and see their limitation and some thoughts about improvements.

This part could even include the suggestion of new gossip algorithms including a theoretical analysis.

The other part is to integrate some gossip algorithm into Clippee. This part includes getting familiar with the existing system.



The goal of this thesis is to gain insights about how gossiping works in general and to implement one specific algorithm using a given infrastructure.

### Skills

- Java programming experience

### Contacts

- Ruedi Arnold, [rarnold@inf.ethz.ch](mailto:rarnold@inf.ethz.ch), HRS G3, phone 26059
- Roger Wattenhofer, [wattenhofer@inf.ethz.ch](mailto:wattenhofer@inf.ethz.ch), HRS G5, phone 26312