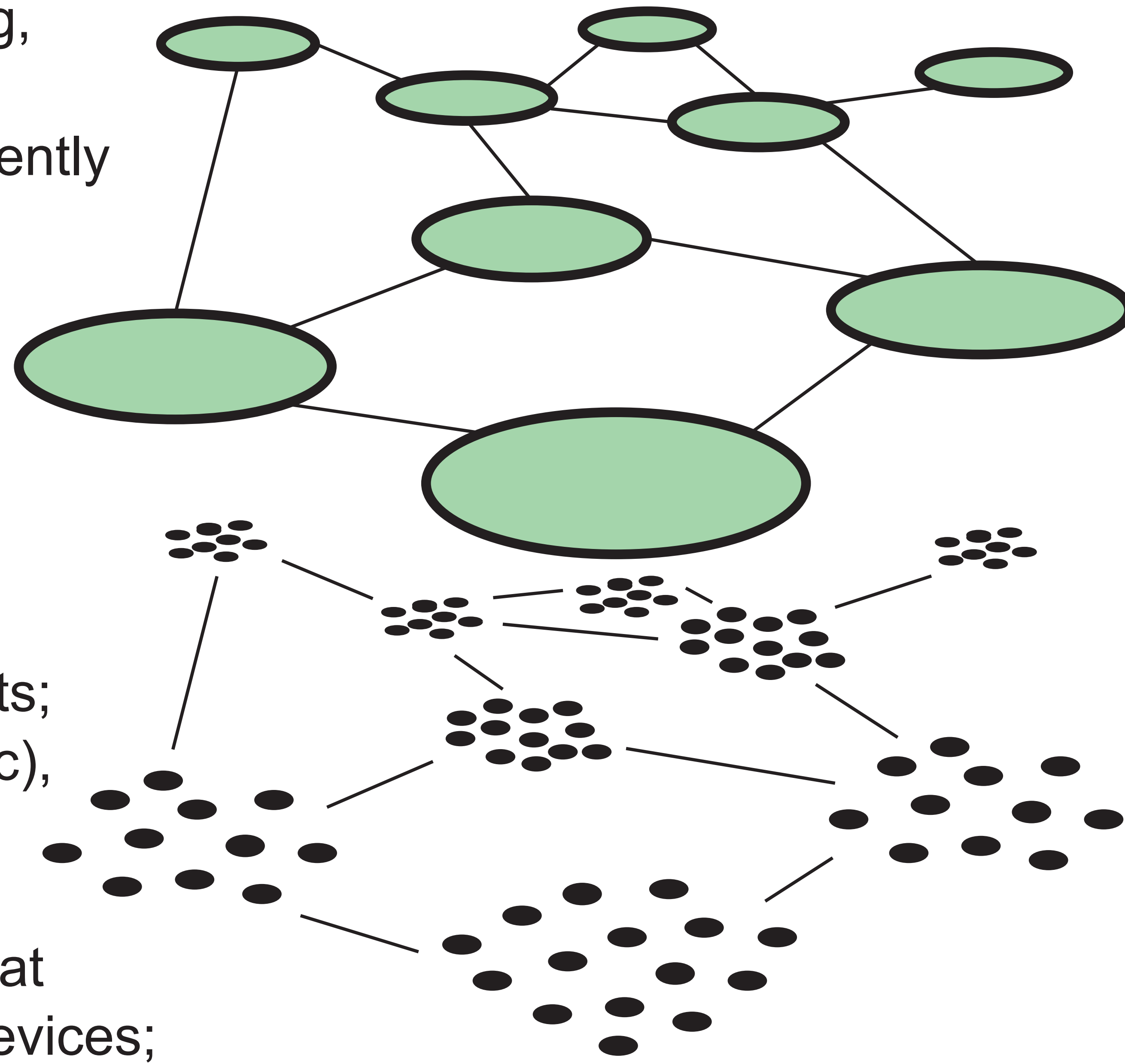


Active Recommendations of Media Agents in Evolving Mobile Social Networks

Introduction

We explore a mobile recommendation system based on distributed collaborative filtering, autonomous agents and social networks theory. A mobile music application is currently being developed that could expand the listening experience through emergence among agents and social interaction between users.



This is how we visualize self-organization in two different levels. The upper level consists of a layer of devices or nodes while the lower level is the media ecology consisting of media agents.

Implementation

We introduce the concept of Media Agents; which consists of a media file (here music), senses, contextual memory and a set of behaviours. The system will run on a communication enabled mobile device that allows Media Agents to move between devices; autonomously or by users' active recommendations.

Hypothesis 1: Media Agents can self-organize according to their contextual experiences.

Examples of contextual experiences that can be stored in the memory of a Media Agent:

- Musical (Neighbours in playlist)
- Temporal (Time when played)
- Spatial (User location when played)

Hypothesis 2: Mobile devices can self-organize through active recommendation and autonomous movement of Media Agents.

Active recommendation is an attempt of direct influence by intentionally share and move an Media Agent to another users playlist. Agents will also make autonomous attempts to recommend themselves.

These actions affect the strength of links between users as well as trigger events for the Media Agent.

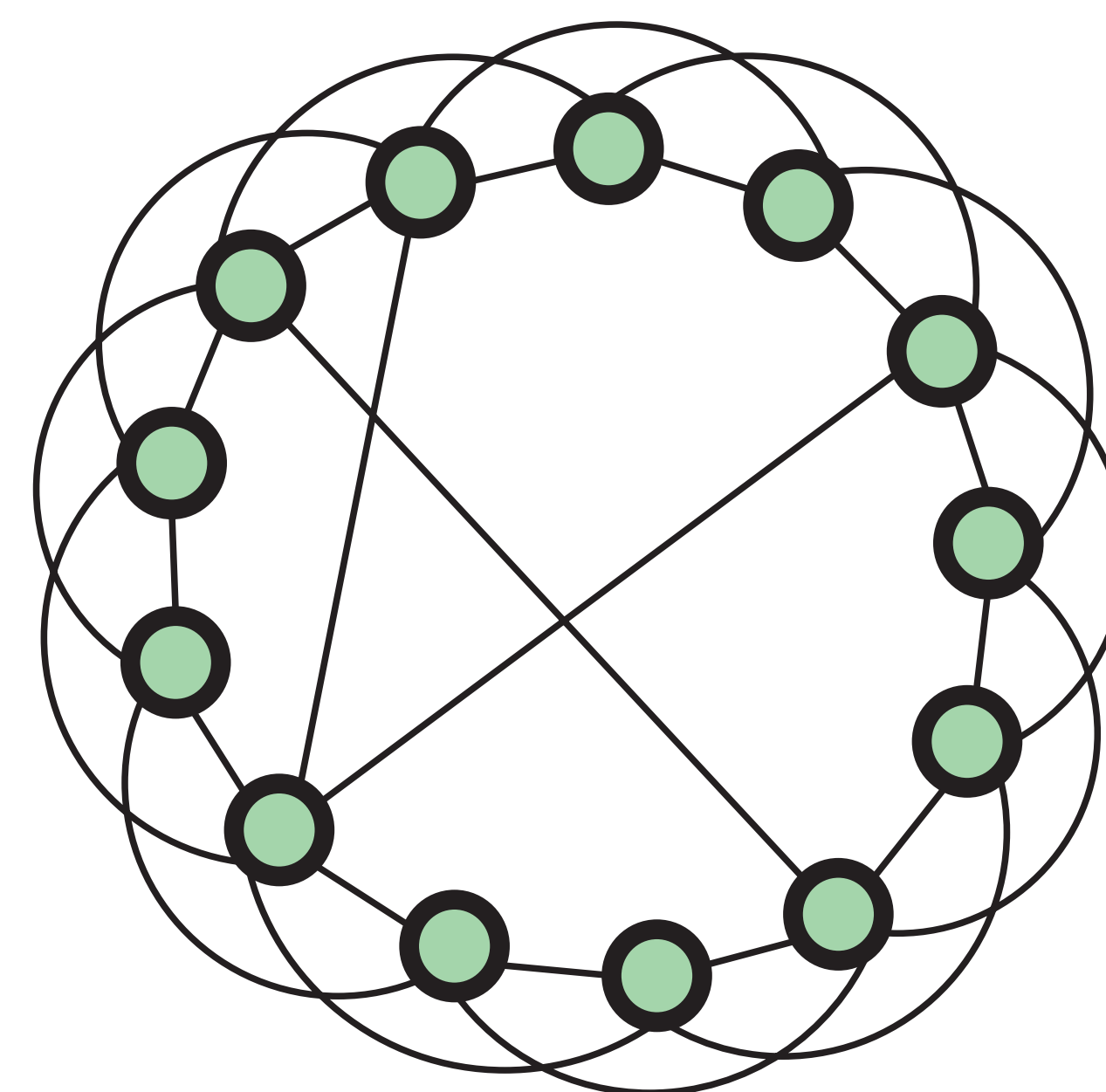
The system is expected to self-organize in two levels; the macroscopic one of mobile devices and the microscopic world of Media Agents.

Simulations

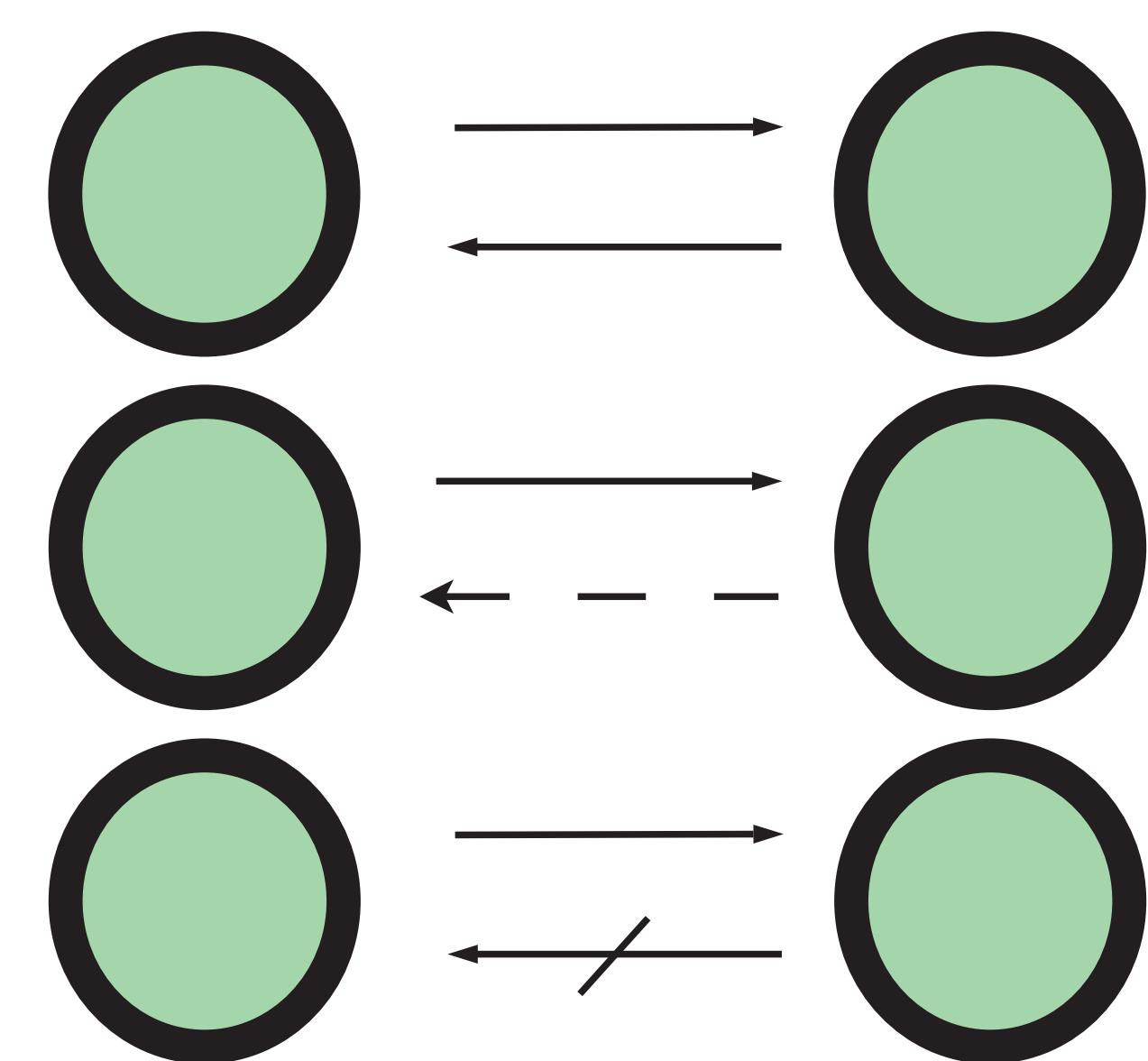
We have gathered a live data set (of Media Agents) to test a stochastic neighbourhood organizing algorithm (according to similarity between the contextual memories of the agents). Results show that the algorithm works, and that further simulations should include feedback to the playlist. This is currently being implemented in an overall simulation of the system.

Future work

Among our ambitions is to explore how different types of contextual information can be used to improve the system. We also plan on doing a real world implementation that can be tested and evaluated by potential users.



Example of a social network model that we use to model how mobile devices connect. Regarding this we also intend to exploit the so called 'small world effect'.



Different values of bidirectional links between devices (nodes) in a social mobile network. The upper consists of two normal links, the middle has one normal and one weak link and the lower has one normal and one blocked link.

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