Agent-based modeling of visitor‘s activities in public urban parks

Masterthesis

Motivation

- Understanding when, how and why people carry out activities in public parks helps with management options as well as with designing new or re-designing existing parks.
- Agent-based modeling seems an ideal approach to make the connection between individual‘s motivations, observed park usage and designed park features.

This thesis investigates how to model specific activities in parks in an agent-based model. Activties range from reading, communicating, playing frisbee, soccer, sun-bathing, jogging, supervising children to BBQ.

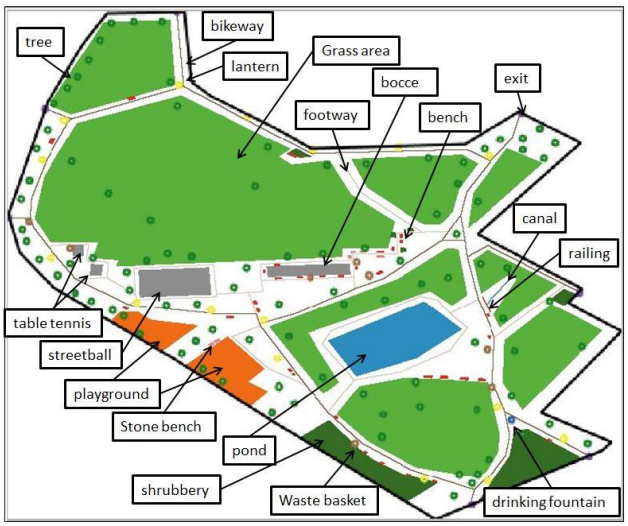


Figure 13: Gögginger Park in NetLogo Marie-Rose Degg

Research Questions

- How can observed activities be modeled and simulated?
- What extensions to existing models need to be implemented?
- Are there new human-environment concepts that need to be taken into account?

Methodology

- Review existing Data Collections of activities in public parks
- Extract activities from data collection
- Research how these activities may be modelled and what concepts are needed for the model
- Differentiate individual, dyadic and group activities and their influence zones (e.g. using Hall’s personal spaces)
- Implement the models for the activities in an agent-based system (preferably Netlogo, but Mesa or SeSAm are also possible)
- Simulate the park’s activities
- Conduct sensibility analysis for chosen activities

Tools

- GIS: QGIS
- Netlogo or Mesa or SeSAm

Previous Work

- Master thesis M.R. Degg
- NFP54: Sozial Nachhaltige Parkanlagen
- Diplomarbeit: Nutzungsspiegel Parks Augsburg

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