

PAOLO PATELLI

Swarm R-Urbanism



Abstract:

This paper introduces a conceptual framework for the modelling of complex non-linear systems – such as urban settlements – to understand and forecast the dynamics involved in the formation of those macro-level spatial patterns we recognise as cities. Subsequently, an agent-based location model that simulates the location decisions of five main types of agents: housing, office, industry, agriculture and wildlife is presented. The model has been written by the author in the Processing Integrated Development Environment and it is based on Craig Reynold's Boids program [1] a simulation of the flocking behaviour of birds. The model considers the interactions of agents with other agents, the interactions of agents with their environment and of agents with emerged patterns. This model is intended to study human behaviour at the micro-level, showing that it is possible to generate macro-level land use patterns from micro-level spatial decision rules.

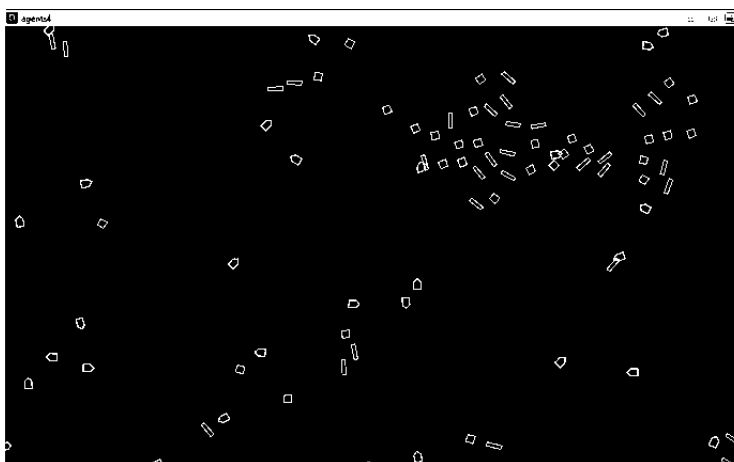
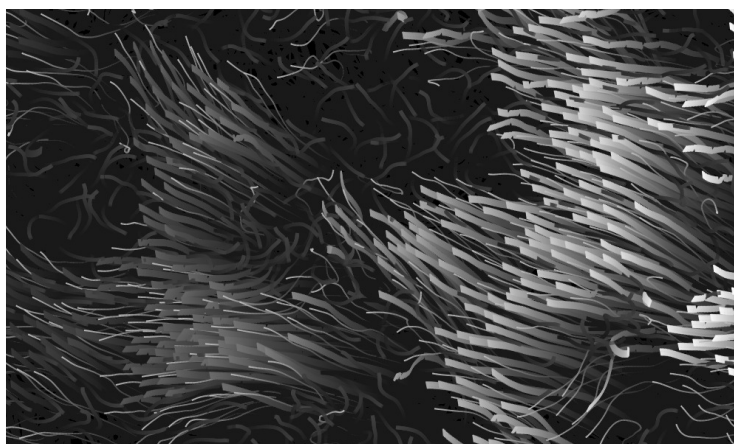
Topic: *Architecture, Urbanism*

Authors:

Paolo Patelli

Politecnico di Milano
Alta Scuola Politecnica,
DIAP

www.polimi.it
www.asp-poli.it



Screenshots of the application with different visualization parameters

References:

[1] Craig Reynolds,
Boids;
<http://www.red3d.com/cwr/boids/>

Contact:

paolo.patelli@asp-poli.it

Keywords:

non-linear systems, agent-based modelling, location behaviour, spatial pattern formation, boids, processing.org