

**BlueBEAR** provides a substantial computing resource that properly supports the research work of research staff and students at Birmingham. It provides a cost effective facility that optimises the effectiveness of research and ensures the University continues to be a world-class academic learning and research environment.

## Agent-based modelling of social phenomena

### Challenges

The project aims at understanding how behaviour of individuals influences social phenomena. This project approaches this research question with computer simulations using agent-based models.

Examples for social phenomena investigated in this project are stigmatization of minority groups and formation of social groups.

### Background

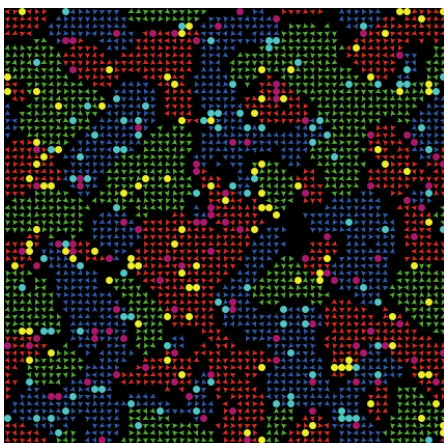
Agent-based modelling (ABM) was originally developed as a method in artificial intelligence to solve problems for which traditional monolithic approaches fail. However in the past 10 years or so the methodology of ABM has turned out to be highly suitable for understanding social processes, such as modelling of business processes, simulations of traffic flow, policy modelling, urban planning, anthropological studies, etc.

An agent-based model consists of independent agents interacting with each other and the environment. The behaviour of each agent is defined by a set of rules, only prominent to each agent (no global controller). This type of model allows researchers to observe how individual behaviours of agents (microscopic level) result in patterns on the macroscopic level (social phenomena).

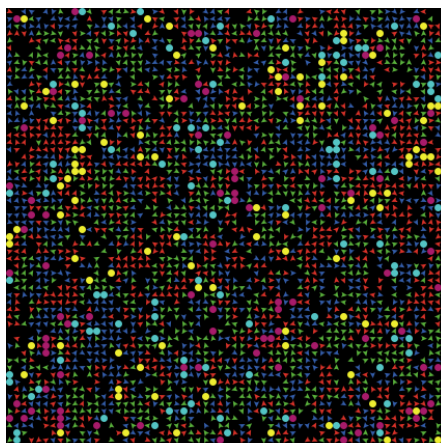
### Results

We developed an agent-based model of social stigmatisation. This model has been validated through experimental findings and has generated predictions of how stigmatisation can be reduced, e.g. by improving contact between social groups or raising the status of social groups.

Social segregation



Social desegregation



### Client Profile

Gregory Carslaw  
School Psychology  
The University of Birmingham  
Birmingham  
B15 2TT

Email : [GXC243@bham.ac.uk](mailto:GXC243@bham.ac.uk)

### Product Used

Matlab

### Funding

ESRC funded PhD studentship

### Contributors

Dr Dietmar Heinke

**UNIVERSITY OF  
BIRMINGHAM**

### For more information:

BEAR, IT Services  
Elms Road Computer Centre (G5)  
Edgbaston  
Birmingham B15 2TT  
Tel: 0121 414 5877  
Email: [bearinfo@contacts.bham.ac.uk](mailto:bearinfo@contacts.bham.ac.uk)  
Website: [www.bear.bham.ac.uk](http://www.bear.bham.ac.uk)