

# The Modelling4All Project

**Ken Kahn** ([toontalk@gmail.com](mailto:toontalk@gmail.com)), **Howard Noble** ([howard.noble@oucs.ox.ac.uk](mailto:howard.noble@oucs.ox.ac.uk)), **Arthur Hjorth** ([arthurhjorth@googlemail.com](mailto:arthurhjorth@googlemail.com)) and **Fábio Sampaio** ([ffs@nce.ufrj.br](mailto:ffs@nce.ufrj.br))  
Oxford University and Federal University of Rio de Janeiro

## Description

The Modelling4All Project (<http://modelling4all.org>) has built a Web 2.0 tool that meets one of the biggest challenges facing computer modelling: Widening participation to include non-programmers.

At the heart of the Modelling4All is a browser-based tool that allows users to design agent-based models through a point-and-click interface: the BehaviourComposer. Just as a composer creates music by combining strings of notes, users easily create agents and bring them to life by combining so-called 'micro behaviours' from a large pre-written but flexible library (e.g. 'move-forward-and-turn-randomly', or 'eat-nearest-enemy'). Even non-programmers are able to create complex models in hours or even minutes: The Modelling4All tool has successfully been used to teach subjects as diverse as epidemiology, flocking behaviour, and business on both bachelor's and master's level at Oxford University.

The Modelling4All tool allows easy sharing of models, combining a constructionist and a social constructivist approaches to learning and teaching: the Modelling4All models are stored on the web server and are compiled to NetLogo to be run as Java applets that can be easily embedded in any web page.

The Modelling4All tool is built on top of NetLogo in such a way that users can quickly build and run models without first learning NetLogo, but the NetLogo code is accessible and editable for more expert users.

## Method

At Constructionism 2010 we will be showcasing the Epidemic Game Maker which enables users to build models and games of epidemics in minutes. It is built as an extension to the BehaviourComposer and was developed for the Royal Society's Summer Science Exhibition 2010 (<http://royalsociety.org/Summer-Science-Exhibition-2010/>). We will also set aside time for discussions of different approaches to teaching modelling and of what tools are needed to support it.

## Expected outcomes

Attendees will develop an understanding of agent-based modelling using the BehaviourComposer, and the way the software has been used in teaching at Oxford and as part of an exhibit about epidemics at the Royal Society Summer Science event this year.

## Keywords

Agent-based modelling, NetLogo, BehaviourComposer, Modelling4All, literacy for computer modelling.