

SICSA Workshop on Computational Ecology

The “Workshop on Computational Ecology” took place at the University of Edinburgh on the 21st of October. It was organised by Jane Hillston and Carron Shankland, with support from the SICSA Modelling and Abstraction theme, to bring together researchers who are interested in developing dynamic models of ecological systems using formal modelling techniques from computer science. This SICSA workshop was a great success, with a lot of participation from all over Scotland, showing a significant interest in applying formal modelling in ecology, as a powerful technique to better understand the dynamics of populations and ecological systems.

It was a great opportunity to gather both researchers from different institutes in Scotland, directly interested in formal modelling techniques and their potential applications in ecology, and colleagues from other disciplines (ecology, mathematical biology or bio-statistics) who are interested to see what formal computational models have to offer.

This event not only provided an opportunity to share interesting research work being carried out in Scotland, but also to build and strengthen networks between different Scottish institutions.

The workshop started with the invited speaker David Sumpter, from Uppsala University, with a great talk about how mathematical models help us understand ecological and social systems. He presented analogies between ecological models (SIR, ants movement, fish movement) and other real world scenarios (audience clapping, electric particles, economy development) to give an insight about the “philosophy” of abstraction and modelling.

The morning session continued with four talks, with some common themes, common interests that link the different research works. The formal approach to modelling ecological systems and the importance of spatial heterogeneity were underlined in three talks, given by PhD students from the University of Glasgow, the University of Edinburgh and the University of Stirling. The morning concluded with a talk by Professor Glenn Marion, from BioSS, on “Modelling disease in wildlife populations”.

The afternoon session was composed of three talks, on different fields, that enriched and widened the topics considered, from sustainable nature-based tourism to models of optimal foraging.

The workshop ended with the talk of Iain Couzin, invited speaker from Max Planck Institute and University of Konstanz, who has presented the impressive research being done in the Department of Collective Behaviour. He presented his research about Collective Sensing and Decision-Making in Animal Groups, that ranges from fish schools to primate societies. His work is focussing on how individuals influence each other and on the study of coordinated collective behaviour, using imaging technologies to study and reconstruct the dynamics within the social animal group.

After the afternoon session, the organisers concluded the workshop by thanking all the participants and encouraging them to organise a second edition of this interesting event in the future.

More information (abstracts of the talks, personal pages of the invited speakers,..) :

<http://wcms.inf.ed.ac.uk/lfcs/>