

# **RISE project 690817: FourCModelling**

## **Year 2 workshop report**

The second annual workshop for the FourCModelling project took place at City, University of London in the United Kingdom on July 4-7. The workshop contained a number of central elements, with a focus on integrating the research from the different work packages and on dissemination and communication. Events included:

(i) Specialist sessions on the background and research carried out to date on each of WPs 1-4; these were comprised of a central main talk and associated questions, but there were also smaller talks from project participants that expanded on this;

(ii) Sessions including presentations of related work from researchers from outside of the project. There was a total of 34 participants in the workshop, including 18 from outside of the project (some of which had attended the previous Prague workshop); 8 of these gave presentations;

(iii) extensive research discussion sessions within the workpackages, and in particular cross work package sessions exploring synergies in the project, and the development of research for the unifying WP5, which was a particular focus of the meeting;

(iv) project review including reports from all of the WP coordinators on any issues relating to non-research aspects (and research aspects not already discussed in the main presentations);

(v) project planning, identifying priorities for the coming year, including for cross work package work, dissemination and communication, and the annual workshop.

A full programme for this event is also attached.

One key priority was adding new institutions to the grant, to better carry out our research plan. Firstly, this was the addition of a new partner organisation. Moffitt Cancer Center is not currently an official partner on the grant, but is closely involved in the work of the grant nonetheless. It is the source of the data used throughout work package 4 on the modelling of cancer and members of that work package work closely with researchers at Moffitt.

Secondly, the addition of a new beneficiary organisation. Work package 2 currently involves the Biology Center in the Czech Republic and Eotvos Lorand Universities as partners. The loss of one of the personnel from Eotvos Lorand and the subsequent participation of a new researcher from Szeged University, mean that we would like to add this university to the grant.

This necessitated an amendment to the grant, and some updates of our secondments, and this process is currently in train.

Overall we had an enjoyable and successful meeting, and we would like to thank all of the participants for contributing to our workshop.

Prior to our workshop on July 3 we had our midterm project meeting, with colleagues from the Commission. This was a very useful meeting, and we were provided with helpful guidance on a number of issues, including the amendment above. We believe that this was also a successful meeting, and was a positive contribution to the main workshop too.

# **Conflict, Competition, Cooperation and Complexity: Using Evolutionary Game Theory to Model Realistic Populations: Workshop 2017**

## **Programme**

### **Dates 3/4-7 July**

July 3rd is for a special meeting of the project with representatives of the European Commission, which funds the project. Thus only project participants should attend that day (see the participant list on the next page).

The main workshop then starts on July 4th at 9.00, finishing on July 7th at 17.00.

### **How to get there**

The University address is:

City, University of London, Northampton Square, Clerkenwell, London EC1V 0HB, UK.

We are about 10 minutes walk from Angel Underground Station (Northern Line) and a little further from Farringdon (Main line Station and three Underground lines).

Many more details can be found at the following address:

<http://www.city.ac.uk/visit>

### Participants

Name	EU meeting and Workshop or Workshop only
Jessica Barker	Workshop only
Andrew Bate	Workshop only
Peter Bayer	EU and Workshop
Mark Broom	EU and Workshop
Joel Brown	EU and Workshop
Selcuk Candan	EU and Workshop
Atheeta Ching	Workshop only
Ross Cressman	EU and Workshop
Jessica Cunningham	EU and Workshop
Nelis Drost	Workshop only
Igor Erovenko	EU and Workshop
Jozsef Garay	EU and Workshop
Julian Garcia	Workshop only
Stefano Giaimo	Workshop only
Indra Gesink	Workshop only
Weini Huang	Workshop only
Georgy Karev	Workshop only
Vlastimil Krivan	EU and Workshop
Chris Overton	Workshop only
Karan Pattni	EU and Workshop
Steve Phelps	Workshop only
Silvestro Poccia	EU and Workshop
Zahra Qureshi	Workshop only
Maria Luisa Sapino	EU and Workshop
Max Souza	Workshop only
Rob Spencer	Workshop only
Katerina Stankova	EU and Workshop
Caitlin Stern	Workshop only
Tamas Varga	EU and Workshop
Esteban Vargas Bernal	Workshop only
Yannick Viossat	Workshop only
Zhijun Wu	Workshop only
Fei Xu	EU and Workshop
Li You	EU and Workshop

## Tuesday 4th July

All sessions on Tuesday will be in room C309.

Time	Presentation
09:00	Arrival and coffee
09:30	Welcome
09:45	Short introduction of participants
10:45	Coffee Break
11:15	Main Rise presentation A: Mark Broom Modelling evolution in structured populations involving multiplayer interactions
12:00	Main Rise presentation B: Jozsef Garay & Vlastimil Krivan Matrix games with non-equal interaction times
12:45	Lunch Break
14:00	Main Rise presentation C: Maria Luisa Sapino From Ebola to Zika: Challenges in Simulating Epidemics
14:45	Main Rise presentation D: Katerina Stankova Understanding Cancer Through Evolutionary Game Theory
15:30	Coffee Break
16:00	Julian Garcia What is a fair strategy set in EGT?
16:25	Stefano Giaimo Evolution of juvenile and post-reproductive mortality via multilevel selection
16:50	Peter Bayer A 2-Phenotype Model of Immune Evasion by Cancer Cells
17:15	Discussion and planning for group working
18:00	Going for dinner

### Wednesday 5th July

All sessions on Wednesday will be in Northampton Suite B.

Time	Presentation
08:30	Pre-workshop coffee
09:00	Working in groups* I
10:30	Coffee break
11:00	Tamas Varga Matrix games under time constraints and the replicator dynamics: relationship between the stability concepts
11:25	Fei Xu An evolutionary prey pairing strategy against optimal foragers
11:50	Selcuk Candan SenseCloud: Data-Driven Sensemaking in a Complex, Evolving World
12:15	Silvestro Poccia On the Effectiveness of Distance Measures for Similarity Search in Multi-Variate Sensory Data
12:40	Lunch Break
13:55	Rob Spencer Applying game theory to kleptoparasitic foraging data from an urban gull population
14:20	Andrew Bate Overcoming incentives to free-ride in biosecurity management
14:45	Esteban Vargas Bernal Modeling sexual selection and rationality of mate choice in the Tungara frog
15:10	Coffee Break
15:40	Working in groups* II
17:10	Discussion
18:00	Going for dinner

\*Precise themes to decide. Some will be within work package, but there will also be cross-work package and more general discussion.

## Thursday 6th July

All sessions on Thursday will be in Northampton Suite B.

Time	Presentation
08:30	Pre-workshop coffee
09:00	Working in groups* III
10:30	Coffee break
11:00	Jessica Cunningham Optimizing Therapy of Metastatic Castrate Resistant Prostate Cancer
11:25	Li You A Spatial Game of Metastatic Castrate Resistant Prostate Cancer
11:50	Karan Pattni Evolving multiplayer networks: Modelling the evolution of cooperation in a mobile population
12:15	Igor Erovenko Optimal repellent and condom usage to fight Zika virus
12:40	Lunch Break
13:55	Steve Phelps Numerical and heuristic approaches for analysing the dynamics of many-player games in small populations
14:20	Zhijun Wu Equilibrium distributions of populations of biological species in networks of social sites
14:45	Max Souza Fixation: The Fingerprint of Evolutionary Processes
15:10	Coffee Break
15:40	Working in groups* IV
17:10	Discussion
18:00	Going for dinner

\*Precise themes to decide. Some will be within work package, but there will also be cross-work package and more general discussion.

## Friday 7th July

All sessions on Friday will be in Northampton Suite B.

Time	Presentation
08:30	Pre-workshop coffee
09:00	Discussion of practical RISE matters: especially Dissemination and Communication: led by Mark Broom
10:00	Coffee break
10:30	Working in Groups* V
12:00	Lunch Break
13:15	Working in groups* VI
14:45	Coffee Break
15:15	Group presentations and final discussion
17:00	Close of workshop

\*Precise themes to decide. Some will be within work package, but there will also be cross-work package and more general discussion.