

What I would like to do when I will grow old . . .

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Monday 10 September 2012, Gefenol Summer School 2012, Benasque,
Huesca, Spain



Universidad
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Who is Alessio Cardillo?

- October 2010
Master Degree (MSc) in Physics, University of Catania (Italy),
Supervisor: Prof. Vito Latora
- February 2011 (ongoing)
PhD student in Physics, University of Zaragoza (Spain),
Supervisor: Dr. Jesús Gómez-Gardeñes

Research Interests

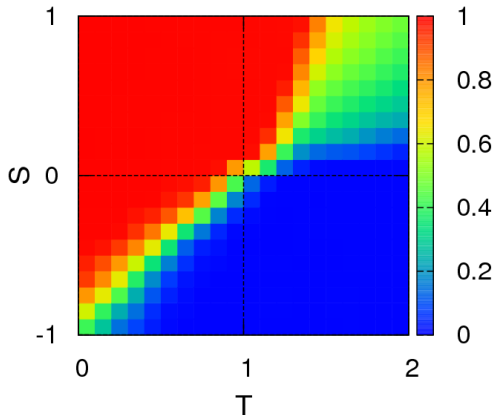
- Study of complex systems under the paradigm of complex networks
- Structural properties of networks of urban street patterns
- Study of dynamical processes acting on top of complex network topologies



Evolutionary game theory on networks

Payoff Matrix

$$\begin{array}{c} \mathbf{C} \\ \mathbf{D} \end{array} \begin{array}{cc} \mathbf{C} & \mathbf{D} \\ \left(\begin{array}{cc} 1 & S \\ T & 0 \end{array} \right) \end{array} \quad \text{with} \quad \begin{cases} T \in [0, 2] \\ S \in [-1, 1] \end{cases}$$

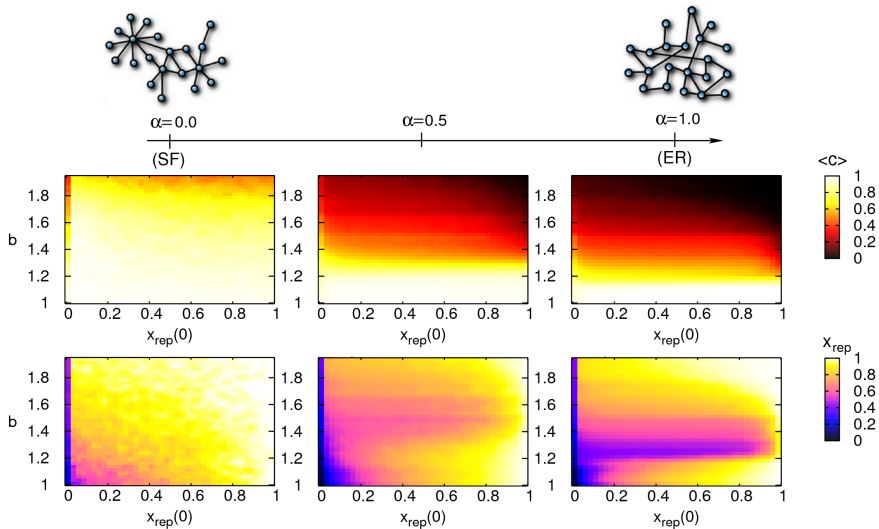


Many update rules

Replication **Imitation** **Moran process**

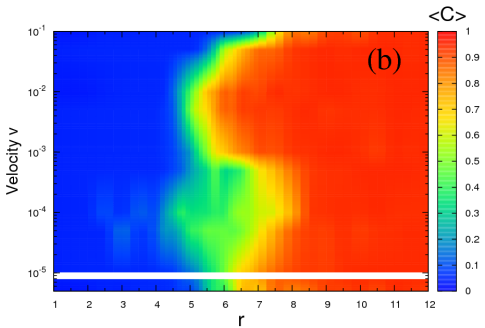
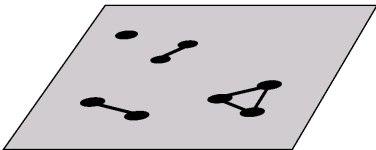
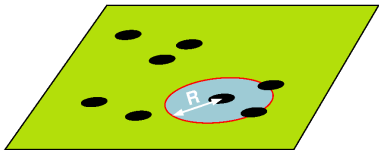


EGN Res I: REP vs UI





EGN Res II: Cooperation vs Motion





Future perspectives

So ... what's next?

- Multilayer / Time Varying networks
- Explore different dynamical process on complex networks (routing, infection spreading, etc)
- Application of network analysis tools to study brain diseases



Future perspectives



... the best is yet to come!

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