Taiki Takahashi

Psychophysical neuroeconomics: bio-psycho-social preferences

In this presentation, a framework of psychophysical neuroeconomics for a better understanding of fundermental process underlying various collective human behavior will be introduced. Psychophysical neuroeconomics is a recently developed approach to human economic decision making. This approach is advantageous in that quantitive analysis (psychophysics) and neurobiological methodology are effectively combined to study fundemental processes governing economic decisions and social interactions. In this approach, theoretical models are developed, which are originated in statistical physics and quantum theory. This psychophysical neuroeconomics, hence, may be a new frontier in the borderline between economics and physics. The important role of subjective time in theorizing time, risk, and social preferences will be emphasized.

Francis Heylighen

Offer Networks: towards a universal protocol for coordinating offers and needs

The capabilities of both human and technological agents can be described as systems of condition-action rules. These have the form A: X->Y: under a given condition X, the agent A is ready to perform an action that produces a new condition Y. This can also be formulated as: agent A is willing to offer Y, but first needs to have X. Coordination can be formulated as a problem of optimally matching the different needs and offers (input and output conditions) of a large number of agents. The simplest method to achieve this is stigmergy: all conditions are posted to a shared medium; agents that recognize a matching input condition (need) add the corresponding output condition (offer) to the medium, thus stimulating further agents to act on this new condition. There are several mathematical and AI techniques that may improve on this self-organizing coordination. However, to maximize its power, we first need a universal protocol in which all human and technological agents can express their needs, offers and capabilities, and a "big data" medium in which they are listed. We call such a system an "offer network", and argue that it will boost globally distributed intelligence. This should in particular promote collaboration, efficiency, recycling, resilience, and the elimination of poverty.

Pierre Degond

Models of network formation

In this talk, we will present a modelling framework for the formation and evolution of networks and give two examples of applications: the first one is the formation of ant trails ; the second one is inspired from vasculo or angiogenesis of blood capillaries. We believe this framework can apply to social networks in which the topology and topography of nodes and links is fuzzy and evolutive.

Jörgen Weibull

Rational inattention in finite games: tenable strategy blocks and settled equilibria

When people make decisions and interact with each other they often disregard alternatives outside those that are conventionally considered. For rational players to usually restrict attention to a block of such conventional strategies, no player should prefer to deviate from the block when others are likely to act conventionally and rationally inside the block. We

explore two set-valued concepts, coarsely and finely tenable blocks, that formalize this notion for finite normal-form games. We then identify settled equilibria, which are Nash equilibria with support in minimal tenable blocks. For a generic class of normal-form games, our coarse and fine concepts are equivalent, and yet they differ from standard solution concepts on open sets of games. We demonstrate the nature and power of the solutions by way of examples.

Jerôme Renault

Information and Games

This will be an introductory talk to games and information, more precisely to the modeling and the use of information in strategic contexts. We will see in particular that the value of information can be negative, how high order beliefs may matter, and discuss the notion of type spaces and the construction of the Harsanyi-Mertens-Zamir universal type space.