1 POSTODOCTORAL POSITION

BEHAVIORAL INFORMATICS AND GAME THEORY

MACHINE LEARNING GROUP

FACULTE DES SCIENCES

Job description

The Université Libre de Bruxelles (ULB) is seeking candidates for a postdoctoral position in Game theory, Behavioral Experiments and Artificial Intelligence research.

The research will be performed with the groups of Prof. Tom Lenaerts (MLG) and Prof. Georg Kirchsteiger (ECARES) at the ULB. This works builds on the expertise of these groups in (evolutionary) game theory, behavioral economics and informatics. Your work will consist of performing a series of behavioral experiments, as defined in the research context below, analyze them and report on the scientific insights gathered from these experiments. The research is based on prior work[1].

Research context: Whenever people need to decide with whom to initiate a strategic interaction, they use information on their potential partners. As partners are aware of the role this information plays, they will try to control what is made available and will anticipate how their decisions in other situations affects that information, and as a consequence their future interactions. Although, group formation and network dynamics are highly influenced by this information-sharing dilemma, there is little insight into which information people prefer to disclose and how this affects trust, group compositions and strategic decision-making. Using methods of experimental economics and theoretical modeling we here will examine these entangled dynamics within the context of a sequential prisoners' dilemma game extended with a partner selection stage. Through three experiments we will investigate what information people disclose in the partner selection stage of the game, whether these differences lead to self-selection and thus different outcomes in cooperation and trust and how, when people can have multiple partners, this disclosure affects network structure. In parallel, but intertwined with the experimental part, minimal models of this co-evolutionary dynamics will be developed and analyzed to provide insight into the broader guidelines that induce self-selection and network stability. These models will provide information concerning the importance of certain parameters in the experiments and will be refined through the experimental results. These refinements should lead to models with

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[1] Zisis, I., Di Guida, S., Han, T. A., Kirchsteiger, G., & Lenaerts, T. (2015). Generosity motivated by acceptance - evolutionary analysis of an anticipation game. *Scientific reports*, *5*. Di Guida, S., Han, T. A., Kirchsteiger, G., Lenaerts, T. and Zisis, I., (2016) Endogenous repeated cooperation and surplus distribution - An experimental analysis. CEPR Discussion paper 11157

certain explanatory capacities, which will be validated using information on a concrete economic situation.

Offer: A **full time international postdoctoral position** for the duration of 2 years, funded by a scholarship supplied by the *Fondation de Recherche Scientifique* (F.R.S. – FNRS).

Expectations:

- The candidate holds a PhD degree in Behavioral Economics, Game Theory, Artificial Intelligence, Behavioral informatics, Complex Systems or a related field.
- Prior skills in setting up game theoretical experiments is a bonus.
- Excellent organizational skills
- Good skills in analyzing experimental data and scripting (JavaScript, Python, etc.).
- Excellent communication skills in English: within the context of this project you will be interfacing with scientists of different backgrounds.
- The candidate is open to collaborative work between the research groups and willing to engage in collaborations with different team members.

Interested ?

Submit a cover letter detailing your background and interest in this position, a full C.V, a list of international published articles (including a short abstract and information concerning citations and journal impact factors, if applicable) or working papers, presentations at workshops/conferences (title, abstract, name of meeting, date) and at least two references (with name, email, address, phone number).

All this information can be sent via email to tlenaert@ulb.ac.be. Questions concerning the position can also be sent to this email address.

Application deadline: Position to filled in as soon as possible.