

Name of JSPS Postdoctoral Fellow:

Dr. Tom Froese

Name of research institution:

Ikegami Laboratory
Department of General Systems Studies
Graduate School of Arts and Sciences
University of Tokyo

Name of host:

Professor Takashi Ikegami

Summary of research plan:

The aim of my JSPS Postdoctoral Fellowship was to study the process of dyadic social interaction as a complex system using the mathematical tools of dynamical systems theory. By developing computer models inspired by actual psychological experiments, we were able to show in detail that social interactions can take on a life of their own. This means that social interactions are not merely the sum of the actions of the individual participants, but that complex interaction dynamics can enable and also constrain the abilities of the individual agents.

On the basis of our computer modeling and mathematical analyses we were able to formulate new hypotheses about the nature of social cognition. Accordingly, we started to collaborate with Dr. Iizuka from the University of Osaka, who helped us to design and build a new technological interface so that we could test our theoretical predictions against empirical data. This psychological experiment about the dynamics of dyadic social interaction is still ongoing, but the initial results look promising and I expect our productive collaborations to continue after the end of my JSPS Fellowship. For example, we are planning to begin a new project with Prof. Hiraki, a neuroscientist at the University of Tokyo, in order to record EEG of both participants at the same time. This will allow us to check for mutual entrainment of brain activity during social interaction.



[Picture caption: This photo shows a pilot study of our psychological experiment, which aims to understand social interaction in terms of complex dynamics. Two participants, who in this case happen to be me sitting on the left and my host professor sitting on the right, try to locate each other in a virtual space by using a minimal haptic interface. Initial results indicate that the salience of the other as another active and responsive agent, in contrast to being perceived as merely a moving object, is supported by the establishment and maintenance of mutually coordinated interaction dynamics. (Photo by Julien Hubert)]

At the beginning of the project my host had applied for a JSPS Grant-in-Aid on my behalf, which provided generous financial support throughout my stay in Japan. The funds covered all of the equipment needed for our research, and they also allowed me to participate in several local and international conferences where I was able to present our work. I highly recommend new JSPS fellows to apply for this funding in order to facilitate their work and to grow their international and Japanese network of contacts.

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