# PARTICIPANT FORM for the SUMMER SCHOOL
## Constructivism and Enaction
## A new paradigm for Cognitive Science

**FIRSTNAME** : Arnaud                          **NAME** : REVEL



## I. – SITUATION

**Status :**                          ⇒ **University teacher**          Research scientist

Thesis student          Post-doc          Other :

**University/ Laboratory** : ETIS Lab. CNRS UMR 8051

**Website labo/perso** : http://www-etis.ensea.fr  & http://perso-etis.ensea.fr/~revel

**Special information(s) (article, scientific responsability, participation to research projects, other...) :**

Articles :

- See http://www-etis.ensea.fr/Members/fichePubliPerso?nomUser=Revel_Arnaud

Scientific responsabilities :

- Responsible together with J.Nadel of the EPML'38 « imitation in robotics and development »

Participation to research projects :

- member of HUMAINE and EURON networks of excellence

## III. – RESEARCH THEME

*Please indicate briefly (10 lines max) your themes of research, and 4 or 5 key words*

I am interested in designing control architectures for autonomous agents, either physical (robots) or software. For that purpose, I take inspiration from neurobiology and psychology. In collaboration with the neurobiologist J.P.Banquet, and in the context of the autonomous navigation of a robot, we have proposed a model of the hippocampus which could be used for planning actions. I am also interested in modelling the basal ganglia which is know to be involved either in action selection or reinforcement. I've also been working with the psychologist J.Nadel on understanding and modelling the dynamic processes involved during interaction between agents, and in particular, during imitation. At last, I am interested in multi-agent systems and I have several collaborations with the industry to promote their deployment.

## III. – VIDEOS AND EXPERIMENTAL MATERIAL

*Moments of relaxation might be the occasion to share and show original scientific video documents (not too long) or experimental material (which could be used by all the participants). A video party and an experimental demonstration session have been planned. Could you indicate video or experimental material you would like to present.*

**Videos** :
- Proto-imitation : this video shows how a simple homeostatic sensory-motor architecture can lead to the imitation of simple movements that can further be learned as a pattern of movements so as to enrich the motor repertoire of the robot.

**Experimental demonstration** :
- Simulation of Animats « living » in a closed environnement : this demonstration shows how an animat can learn « place cells » and link them together to build a cognitive map of its environment. This map can further be used to help the agent plan its movements towards a goal which varies in function of internal motivations (hunger, thirst, tiredness).