Network Action Proposal

Title:	Visit of Boris Duran to the Laboratory of Intelligent Systems and Informatics, University of Tokyo.
Membership number(s)	30
Member name(s)	Giulio Sandini
Member institute/company name(s)	University of Genova
Goals of the action	To enable a 6-month research visit of Boris Duran (IIT – University of Genova) to the Laboratory of Intelligent Systems and Informatics, University of Tokyo, to work with the group of Prof. Yasuo Kuniyoshi. The period of visit would serve to study the emergence of the coordinated motion between eyes and head in a humanoid platform. At present, the problem of eye-head coordination has been solved in many different ways, some of them very efficient, but always using the classic control theory which has no relationship with the way we humans solve this problem. The aim of this research visit is to investigate a different approach based on bio-inspired nonlinear and chaotic dynamics that we expect will shed some light in the cognitive development of smooth pursuit in infants. In this way, the work done during the visit will contribute our understanding of the developmental aspects of cognitive systems. While Prof. Yasuo Kuniyoshi has developed a model of body-environment interaction that makes use of coupled chaotic systems, resulting in the emergence of motion behaviors, the approach has been used only in simulations; Boris will implement this model in a real robotic platform, a copy of the iCub's head from the RobotCub project.
Principal activity to which it contributes o Community Outreach o Scientific Outlook o Education & Training	Community Outreach Education and Training
Concrete outcomes of the action (at least one of which should be material suitable for publication on the euCognition website)	At least one state-of-the-art-survey/position paper on online learning systems for cognitive systems, to be published in the euCognition website. This will also be submitted for journal/conference publication. A Cognition Briefing on non-linear and chaotic dynamics in the development of emergent coordinated visuo-motor skills.
Effort in person-days that will be charged to the Network Action (if any)	
Expected start and duration in months	4th May – 3rd November
The requested funding, under the following headings: o Travel Costs	Other costs: - 4800 € support for accommodation and subsistence during visit in Tokyo (800 € per month

○ Other Costs (check with the Network Coordinator if you aren't sure about eligibility of these costs) ○ Labour Costs (identify the number of person-days and the rate per day).	per 6 months) TOTAL REQUESTED - 4800 €
Please identify any other sources of funding that contribute to this Action (actions to support events such as workshop and conferences should include an outline budget identifying the total cost)	The Italian Institute of Technology will provide funding for Boris Duran's participation to a conference to present joint work as well as travel to and from Japan. Since the cost of living in Tokyo is very expensive, the IIT will also provide supplementary co-funding of approx. 800 € for accommodation and subsistence