EVOLUTIONARY CLUSTER

SUMMARY OF WEEK 30 - 33 (21 MAY –21 JUNE 2012)

The most important news of the last weeks is the Evolutionary Cluster meeting on June 4 in Amsterdam. Attendance was lower than previously, but we had representatives from Almende, Uni Gent, Uni Graz, INRIA, Uni Stuttgart, and of course the VU Amsterdam. In line with the plans, we decided to continue the threads we have started in the fall of 2011 (mainly working towards joint papers of the task forces) and to (re)define the cluster for year 5.

In particular, two existing tasks are being continued: Morphogenesis (led by Nicolas) and Controllers led by Juergen). The Morphogenesis task is in the stage of finalizing the list of indicators to test experimentally. Real comparative experiments will start after converging on this issue. The Controllers task is in the middle of experimentation already. However, there are two problems. Firstly, the simulator is VERY slow and can become even slower for unknown reasons. E.g., one run would normally take about one day and a half on one core, but sometimes it costs 5 days. You can imagine what this means for collecting enough data for producing decent statistics… Secondly, the experimental results seem to lack evidence for good on-line gait evolution. That is, in those runs that are completed by now, the hand-coded controller works better than the ones learned through the encapsulated evolution mechanism. This seems to hold for all three shapes we consider (I, T, H), be it to a different extent. Besides, the progress curve of the fitness values seems to flatten out very quickly after the start. We are looking into these effects now and will report our findings in a week or two.

We have decided that writing the joint papers will commence if/when we have more confidence in the results.

The new tasks for the new version of the Evo Cluster can be divided into two major groups: hardware and software related tasks. The transition from simulations to real robots implies close collaboration with the Hardware Cluster. For the time being we are waiting for the robots and a prompt from that cluster. Meanwhile, we continue research in the simulator.

To specify new tasks (in simulation) we identified a number of crucial features / skills / components / building blocks **for organisms**, see the minutes on the cluster wiki. The most important new tasks implied by these building blocks are egg-based reproduction and organism navigation. These will be started as soon as possible, parallel to the running "old" tasks. Nicolas and Jean-Marc will coordinate the egg-based reproduction task. The organism navigation task will be coordinated by Mark Hoogendoorn from the Comp. Intell. Group on the VUA (i.e. direct colleague of Gusz and Berend).

Other important features for organisms, e.g. self-repair and foraging, are deliberately not addressed by the Evolutionary Cluster now. These can be provided by other partners, e.g., the Uni York for self-repair and the GC1 group for foraging.

Finally, an editorial note: I will change the timing of these reports. From now on I will send one around on Thursdays, following the weekly skype meeting of the Evo Cluster. (And will try to do it weekly again, minus a summer break later on.)

More details and a full collection of our weekly reports on https://symbrion-ec.wikidot.com/