

EVOLUTIONARY TASK FORCE

SUMMARY OF WEEK 19 (6 – 12 MARCH 2012)

It really works and you can see it! For the first time we have a real Robot3D demonstration of a group of robots going through **ALL** major stages of our demo for Grand Challenge 2:

swarm → morphogenesis → organism → moving organism (with evolved locomotion).

Berend made a movie of 4 robots docking an egg and then switching to organism locomotion. It can be seen at: <http://symbrion-ec.wikidot.com/local--files/subtask5:docking-robots-updated/docking-moving.avi>

FYI: this is based on the explicit representation of organism shapes and it is fully in Robot3D without shortcuts and workarounds.

S/T details:

Subtask-force 1 (Morphogenesis)

- Explicit approach (Christopher): integrating morphogenesis code and docking. Still under polishing.

- Implicit approach:

- Michele@INRIA: no news

- Yaoyao@Ghent: docking code is still under investigation. No interface yet, no tests on Robot3D yet.

- Graz: An impressive job regarding the proposed indicators has been accomplished.

We are very close to making the final choice about the implicit approach to be implemented in the demo. Currently, Graz provides the most advanced and integrated approach and availability in terms of manpower. Thus, unless strong arguments are brought up against this choice before the next meeting, this will be the “official selection” to be presented on the General Assembly.

Subtask-force 2 (Organism control)

Parameter settings for the organism control approaches CPG and AHHS were tested. First promising results (small movement of the organism) were obtained using the CPG approach, even though some general problems with the 3D-locomotion (hinge) have been detected. Intensive cooperation with Vojta and Lutz has been started to solve this issue.

The GRN approach was integrated into the framework. It does not use the provided world model, yet, but it will work with the same fitness function so that comparison is possible.

Subtask-force 4 (Integration and Joint Experimentation)

Berend finished the last pieces of debugging and tuning the docking code. This code has been significantly reworked using code written by Lutz as an example. The docking code is now a lot easier to read and use, and is ready for its genomes! The movie mentioned above is made with this version.

Vojta was helping Yao Yao with running Robot3D. There are some tough problems with the 3D hinge; solving these will take more time. Preparation of the experimentation computer was thus postponed.

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