

EVOLUTIONARY TASK FORCE

SUMMARY OF WEEK 20 (13 - 19 MARCH 2012)

We are finalizing the preparatory work and make the transition to extensive experimentation (see below). Meanwhile, we are preparing the presentations for the General Assembly on Wednesday and Thursday in Karlsruhe.

S/T details:

Subtask-force 1 (Morphogenesis)

During the weekly skype meeting we confirmed the decision about the "official" implicit morphogenesis approach. It will be the one provided by Graz. This means that now we can do the comparison between explicit and implicit representation of organism shapes. The two approaches are: explicit by the UWE+TU+VUA system and implicit by the Graz method.

Ghent's approach is still in the process of being integrated in Robot3D. Yaoyao is putting great effort to it, but faces technical problems. A dedicated work session with Berend this week is planned to boost this line of work.

Berend's docking code is currently being integrated by Graz, INRIA and Ghent. Feedback is being collected (the code is in its release form, so you never know...).

The morphogenesis part in the deliverables is completed and contains three approaches: one explicit approach (UWE, TU, VUA), two implicit approaches (INRIA and Graz). All approaches have been thoroughly tested in Robot3D - this was a mandatory requirement to make it to the deliverable.

Subtask-force 2 (Organism control)

The comparison experiments between CPG and AHHS based controllers have been started on Friday in Prague, Amsterdam and Graz. First results (good or bad) are expected at the beginning of this week. Three shapes of the same size (11 modules) are tested: I, T and H (with 2, 3, and 4 end-modules, respectively). We have no idea how a "T-shaped" organism should move, we hope artificial evolution will surprise us.

The integration of the GRN approach is ongoing.

And, finally, a description of work of this subtask-force was included in SD3.9.

Subtask-force 4 (Integration and Joint Experimentation)

The joint experiments to compare different organism controllers are running. An indication of speed: the VUA runs need about 20-24 hours each on one processor. That is, given one controller type and one shape (I or T or H) it takes about a day to finish one evolutionary run. For 30 independent runs we would need m days and n processors with $m \times n = 30$. Vojta is experimenting with a cluster to speed it up. There are options via Anne (this could cost money) as well as via Berend (free, but not sure if this will work). We will look into them in the coming days.

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