

## EVOLUTIONARY TASK FORCE

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### SUMMARY OF WEEK 25 - 27 (17 APRIL - 7 MAY 2012)

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The past three weeks have been dominated by the preparation of the Symbicator review meeting. We have been preparing software and hardware demos, movies, and presentations. In summary, two real hardware demos have been presented: morphogenesis driven by the explicit representation of four modules, produced by the UWE and York and on-line, on-board evolution in an organism of three modules, produced by Graz. In software, our present state-of-the art was shown by a movie, produced by INRIA and the VUA, showing the morphogenesis of four modules immediately followed by on-line, on-board evolution in the resulting organism learning how to walk.

Our presentations and demos have been well received by the reviewers and project officers. They have complimented on the way we focused efforts towards implementing Grand Challenge 2 in a specific scenario as well as on the progress made in a relatively short period. Once again, I want to thank each and every one in the Evolutionary Cluster for their contribution!

#### **What next?**

There are four main threads of current and future work. Firstly, we will continue and complete the simulation experiments we have started in the last weeks, comparisons between morphogenesis techniques, comparisons between controllers, and we will write those joint publications we have planned. (See slide number 4 in the Intro presentation on the Evolutionary Cluster: summer 2012 - conference papers, fall 2012 – journal papers, winter 2012/2013 very high impact journal papers.) Secondly, we have to integrate our approaches into THE software demo that shows the emergence of organisms that can move and reproduce. Thirdly, we have to integrate other approaches, under development in other groups, towards the functionalities we do not handle at the moment: feeding and self-repair. As for feeding, we could rely on solutions within the focus group for Grand Challenge 1 as well as on the work of the Bio Cluster. The self-repair features are already in a very advanced state, as shown by the presentations of York. Fourthly, we have to liaise with the Hardware Cluster and start working on the final goal: demonstrating Grand Challenge 2 in real robots.

Furthermore, in response to one of the critical remarks during the review meeting, we will have to position Grand Challenge 2 with respect to the Description of Work (from 2010) and motivate the differences between the “old” and the “new” versions.

#### **Meetings**

To discuss and redefine our tasks, task-forces, and priorities, we will organize an Evolutionary Cluster meeting in the coming weeks. We should also arrange a meeting between the Evolutionary Cluster and the Hardware Cluster as soon as possible. These will be arranged separately in the near future.

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