

# EVOLUTIONARY TASK FORCE

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## SUMMARY OF WEEK 7

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In week 7 everyone put effort into porting their code into Robot3D. The simulator was found to run quite stable for long periods (up to 3 days on my computer), as long as the computer is powerful enough. Luckily we have a few computers in the task force which are powerful enough, and we discussed using these for the experiments during the weekly Skype meeting, what is run where will be discussed later.

Subtask 1 has finalized their approaches and have started implementing them in Robot3D, they will report on the indicators they agreed on somewhere this week. The indicators were: Size of the genome, Properties of the mapping (1-1, 1-N), Number of viable shapes when initializing randomly, and number of viable and unique shapes after variation operators are applied.

Subtask 2 is nearly done with implementing in Robot3D and will be running an experiment using all three approaches at once. The two CPG approaches of Florian and Evert have been and will continue as one controller. The experiment will let evolution choose which of the three controllers is used; this is a genome on the organism level. Then evolution on either organism or module level will optimize the parameters for the CPG, GRN and AHHS. This should show which of these approaches is best, or whether there is little difference. Subtask 2 will hold a Skype meeting on how to implement the experiment this Wednesday.

Subtask 3 has used the traces generated by previous runs to develop a preference based QI. Basically each trace was labeled as either good or bad behavior and this data was used to learn the correct clustering based fitness function off-line.

Subtask 4 has been assisting in the installation and use of the simulator, which they will continue to do. A tutorial on installing and using the simulator has been posted on the symbrion-ec blog. It has recently been updated with a more thorough explanation on creating controllers and using the HAL interface.

For further details please consult the SEC Blog: <https://symbrion-ec.wikidot.com>