

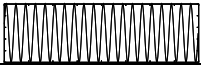
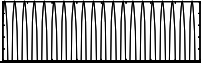










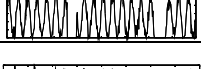



desired behavior env. input		sine	step
sine		16.70 ±1.32 10.40 :	35.31 ±8.69 0.762 :
pos. sine		26.54 ±3.47 12.09 :	14.48 ±2.75 1.145 :
step		29.63 ±1.23 21.51 :	27.03 ±4.04 2.931 :
pulse		45.33 ±6.06 13.10 :	43.39 ±3.13 26.23 :
sine +noise		27.59 ±2.01 13.27 :	54.78 ±12.6 21.27 :
pos. sine +noise		32.12 ±3.08 16.35 :	35.00 ±5.88 13.65 :
step +noise		34.96 ±1.29 30.08 :	30.34 ±2.55 16.58 :
pulse +noise		43.74 ±2.62 32.03 :	59.07 ±6.93 18.08 :
sine +black- outs		33.55 ±1.21 28.92 :	46.48 ±4.89 26.27 :
pos. sine +blackouts		39.92 ±4.51 29.29 :	43.76 ±4.84 25.38 :
step +black- outs		41.67 ±1.73 29.10 :	63.47 ±10.1 38.20 :
pulse +blackouts		50.79 ±4.21 24.29 :	46.09 ±4.12 17.75 :
sine +noise +blackouts		39.50 ±1.87 28.30 :	53.05 ±3.31 36.80 :
pos. sine +noise +blackouts		46.48 ±3.39 30.83 :	54.24 ±3.56 35.77 :
step +noise +blackouts		44.35 ±1.55 38.93 :	52.76 ±4.24 37.61 :
pulse +noise +blackouts		53.27 ±4.34 23.57 :	64.33 ±6.41 27.48 :

Table 2: Outcomes of runs evolving 9 gene GRNs, with the leftmost column depicting the environmental stimuli used and the topmost row the desired output behavior for every run. The data cells show the final deviation averaged over 10 repetitions with 250 generations each, \pm its standard error and the best adapted GRNs deviation as well as a graph of it's lifetime behavior. Note that during the runs blackouts occurred randomly and the regularity is only to ease reading of this table.

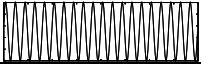
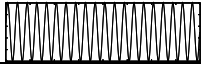
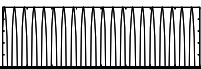
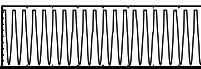

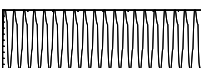

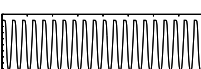
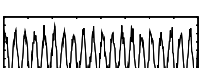
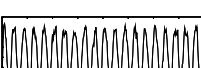
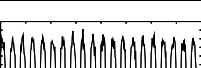















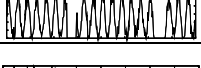





	desired behavior			
	env. input	sine	step	step
sine		27.75 ±10.4 10.92 :		20.04 ±3.90 3.870 :
pos. sine		41.91 ±5.28 17.56 :		36.23 ±7.85 5.539 :
step		36.45 ±3.47 20.32 :		49.67 ±10.4 2.479 :
pulse		37.45 ±4.07 18.12 :		52.56 ±5.87 32.89 :
sine +noise		30.44 ±1.81 22.17 :		41.40 ±6.16 17.30 :
pos. sine +noise		37.16 ±4.44 22.31 :		45.30 ±9.35 17.78 :
step +noise		38.83 ±1.85 31.53 :		70.11 ±14.4 13.87 :
pulse +noise		59.79 ±7.38 35.73 :		65.87 ±3.32 44.30 :
sine +blackouts		38.08 ±2.92 28.88 :		43.40 ±5.40 21.83 :
pos. sine +blackouts		46.48 ±2.52 36.47 :		63.28 ±3.95 41.23 :
step +blackouts		45.00 ±2.94 33.92 :		64.86 ±9.41 37.60 :
pulse +blackouts		56.80 ±3.84 36.61 :		57.69 ±3.89 32.03 :
sine +noise +blackouts		55.14 ±7.60 36.07 :		63.08 ±4.34 38.73 :
pos. sine +noise +blackouts		54.92 ±5.71 29.26 :		72.67 ±8.94 48.68 :
step +noise +blackouts		49.55 ±2.74 40.16 :		61.51 ±8.48 46.00 :
pulse +noise +blackouts		71.81 ±6.31 51.78 :		89.70 ±6.73 68.41 :

Table 3: As in table 2, but this time results from runs with 5 gene GRNs are shown.