NeuroDesign: optimalisation report

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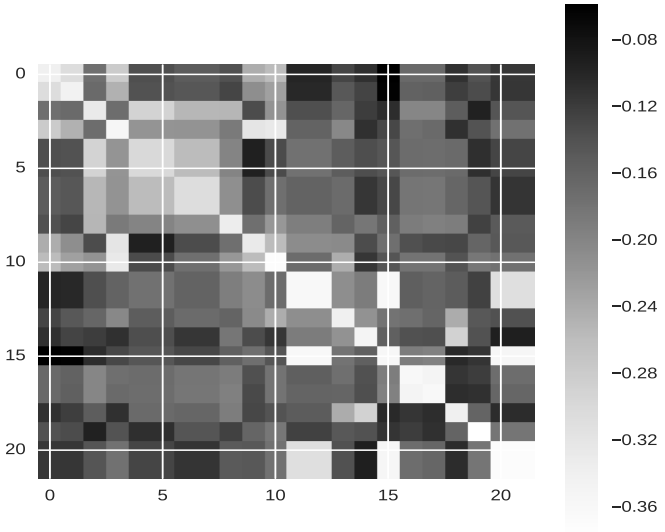
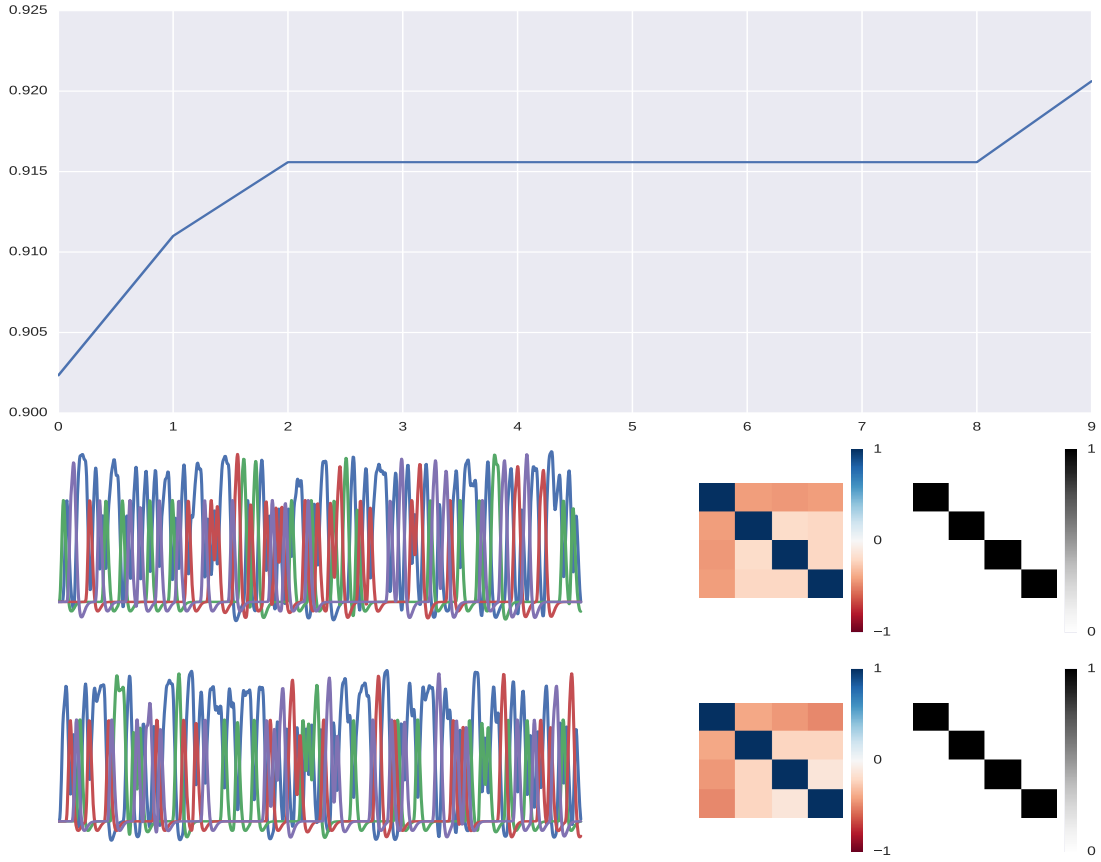
Correlation between designs

During the optimisation, the designs are mixed with each other to find better combinations. As such, the designs can look very similar. Actually, the genetic algorithm uses natural selection as a basis, and as such, the designs can be clustered in families. This is the covariance matrix between the final 20 designs



Selected designs

The following figure shows in the upper panel the optimisation score over the different generations. Below are the expected signals of the best designs from different families, more specific and in relation with the covariance matrix, designs 0, 11. Next to each design is the covariance matrix between the regressors, and the diagonalmatrix with the eigenvalues of the design matrix.



Experimental settings

Repetition time (TR):	0.68
Number of trials:	160
Number of scans:	1036
Number of different stimuli:	4
Stimulus probabilities:	0.55 0.15 0.15 0.15
Duration of stimulus (s)	3.5
Seconds before stimulus (in trial):	0.0
Seconds after stimulus (in trial)	0.5
Duration of trial (s):	4.0
Total experiment duration(s):	704
Number of stimuli between rest blocks	0
Duration of rest blocks (s):	0.0
Contrasts:	0 0.5 0 -0.5 0 0 0.5 -0.5
ITI model:	exponential
minimum ITI:	0.0
mean ITI:	0.4
maximum ITI:	10.0
Hard probabilities:	False
Maximum number of repeated stimuli:	6
Resolution of design:	0.1
Assumed autocorrelation:	0.3

Optimalisation settings

Optimalisation weights (Fe,Fd,Fc,Ff):	0.0 0.1 0.4 0.5
Aoptimality?	True
Number of designs in each generation:	20
Number of immigrants in each generation:	4
Confounding order:	3
Convergence criterion:	10
Number of precycles:	10
Number of cycles:	10
Percentage of mutations:	0.01
Seed:	7030191