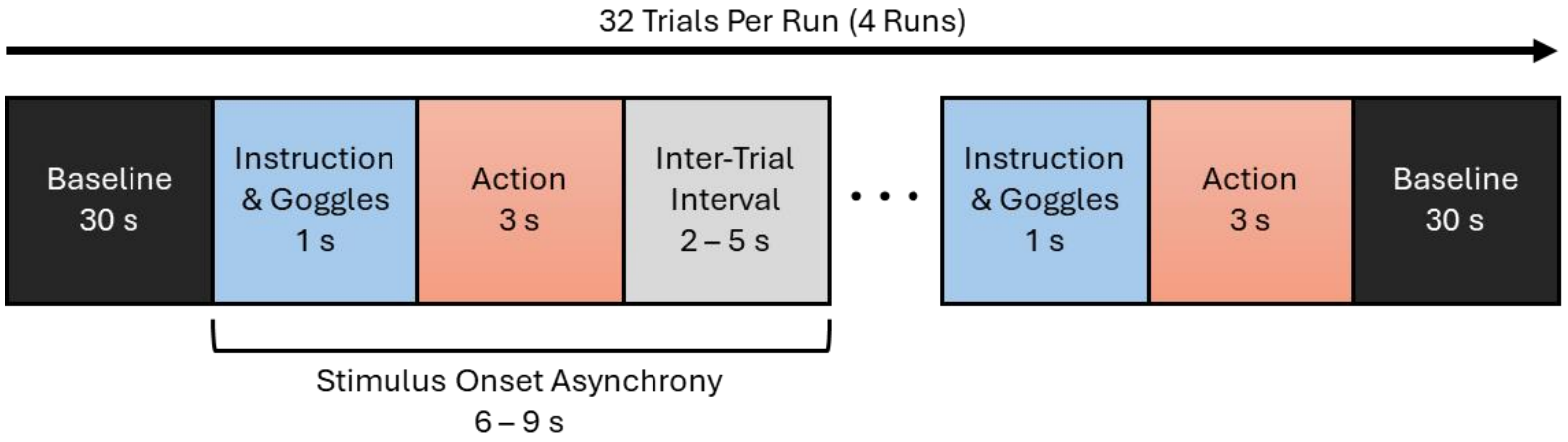
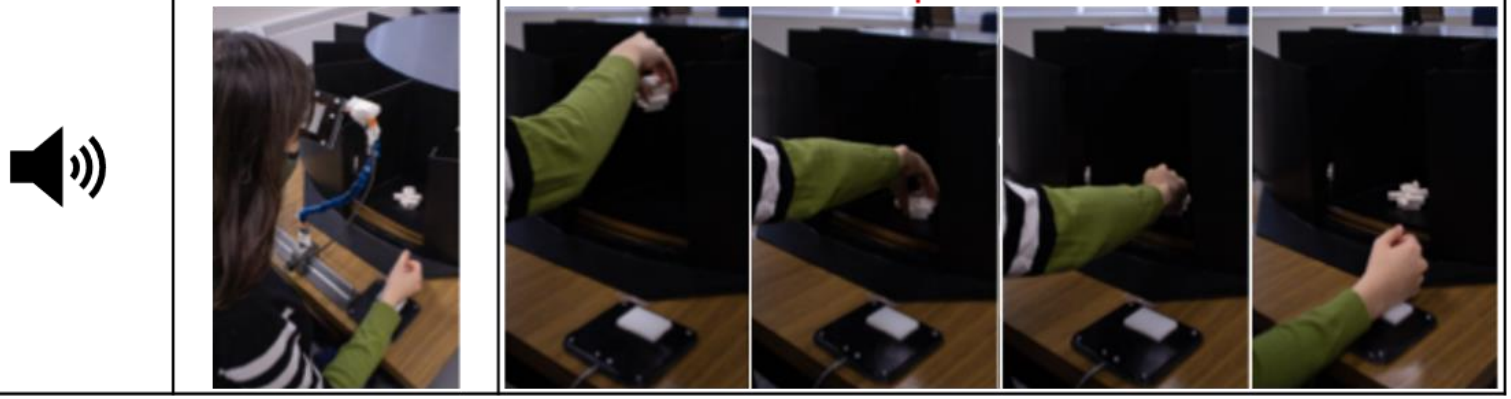
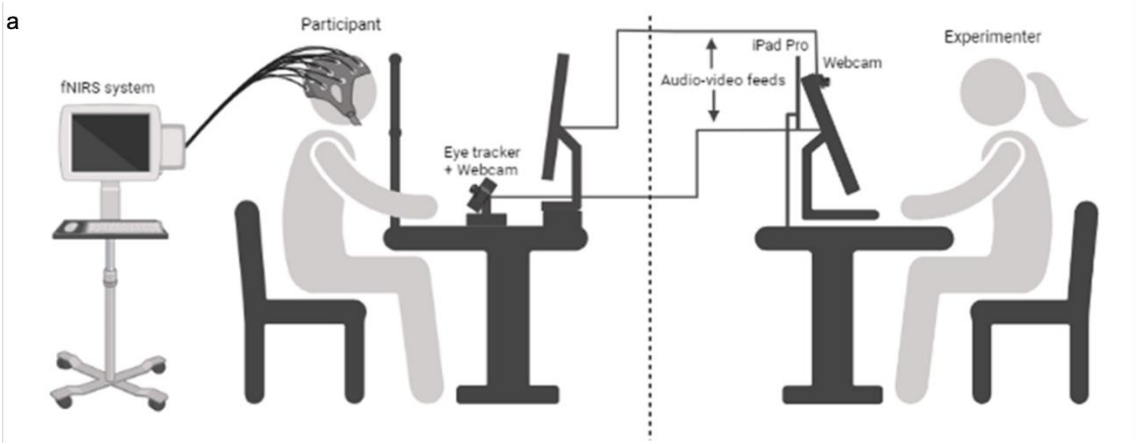
Motor Task Design

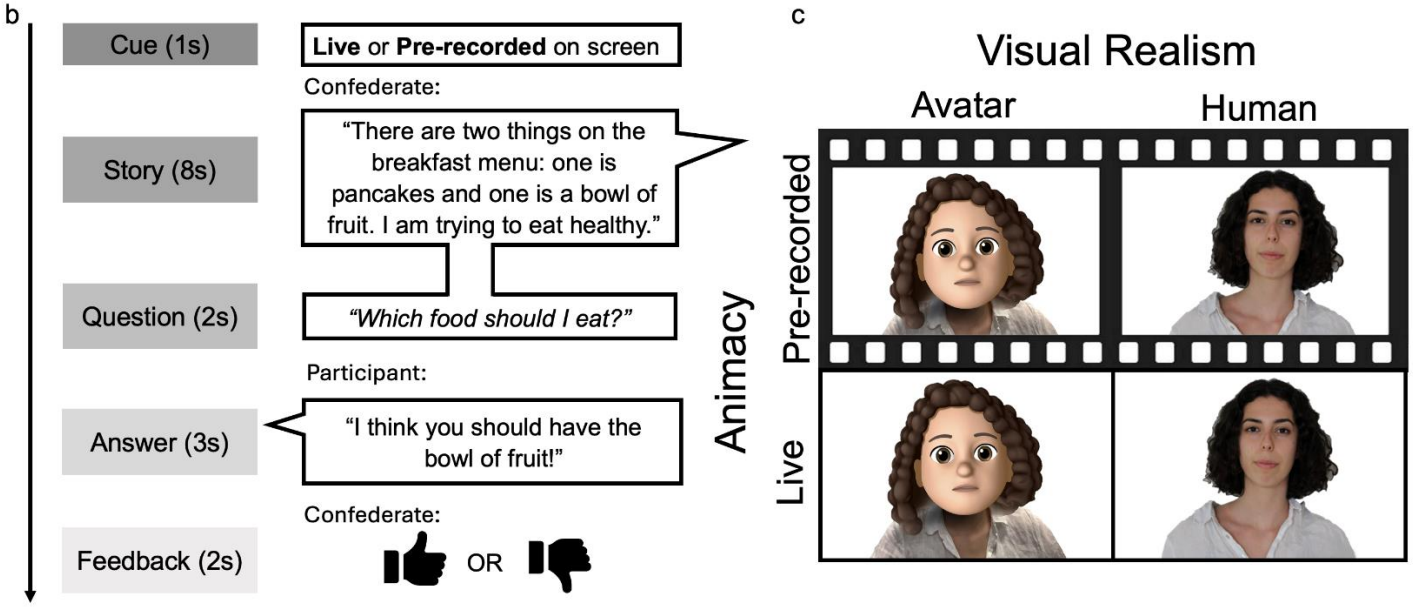


Audio Instruction 0.65 s	**Goggles Open 0.35 s**	**Perform Action (Goggles Closed) ~3 s**
	Home Position	Lift Grasp Reach Look

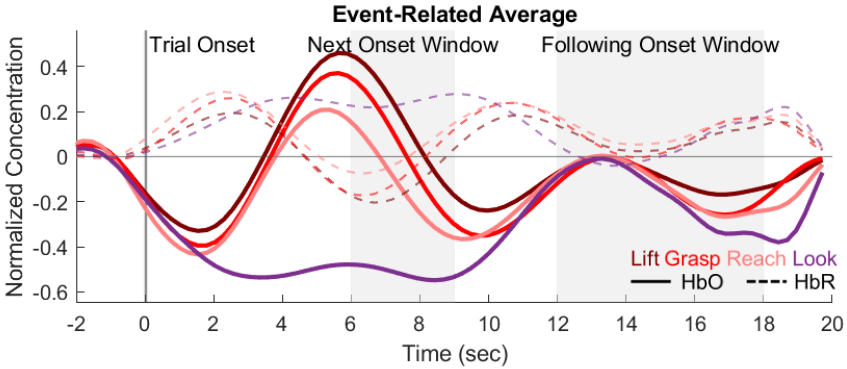


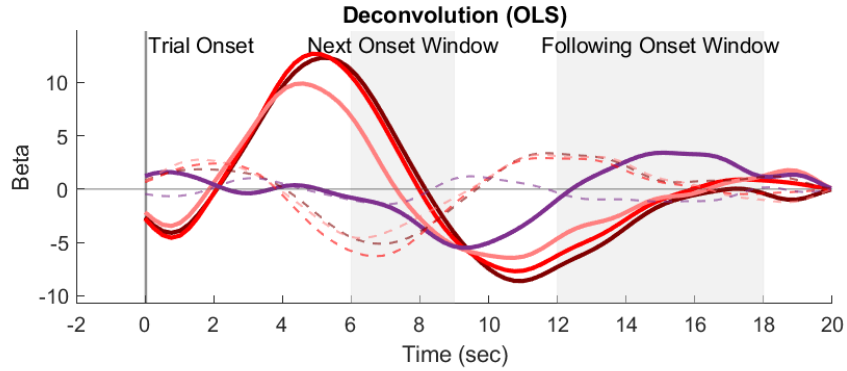
Social Task Design

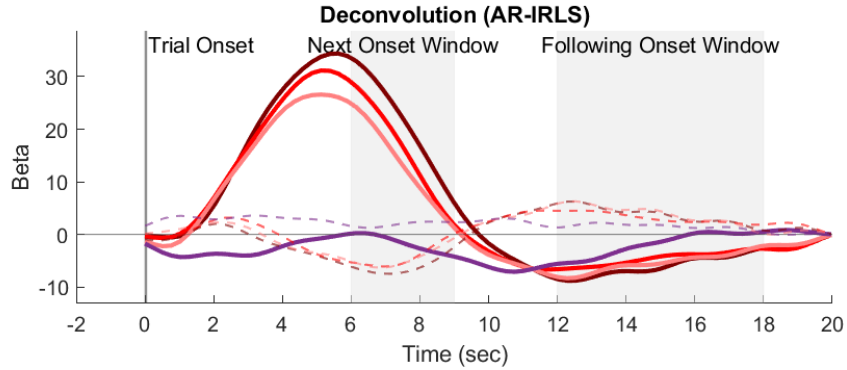




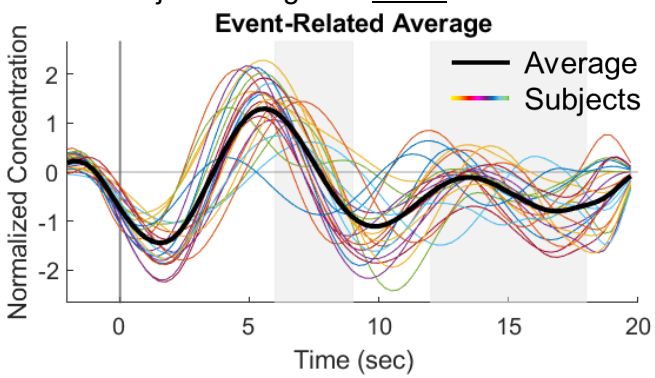
Results with OLS: Motor (Human)

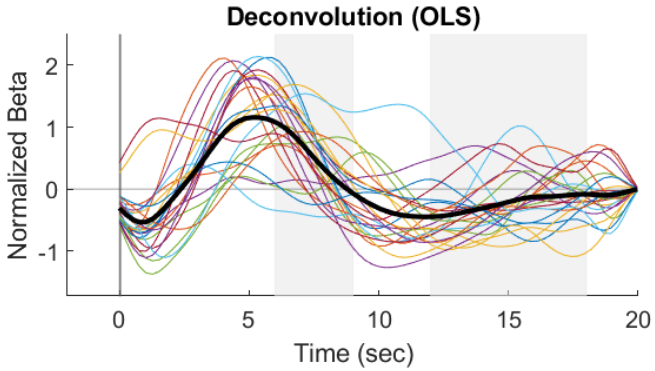


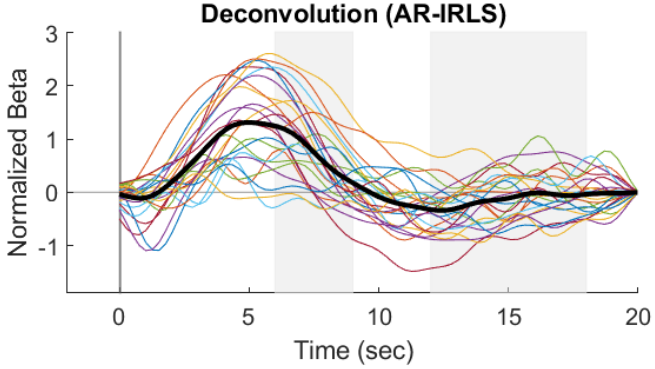




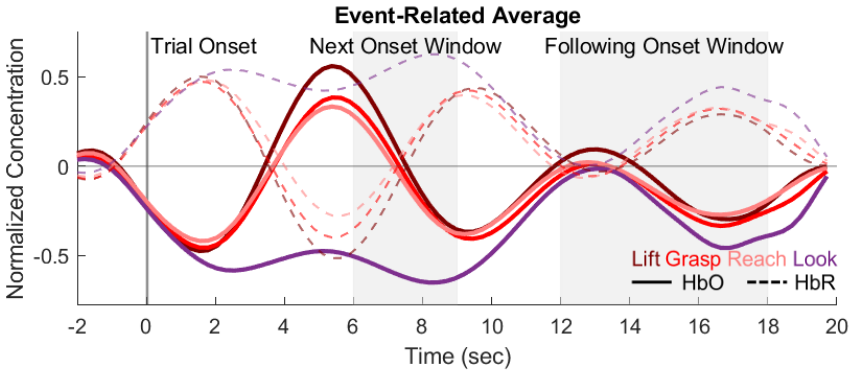
Subject averages of Motor conditions

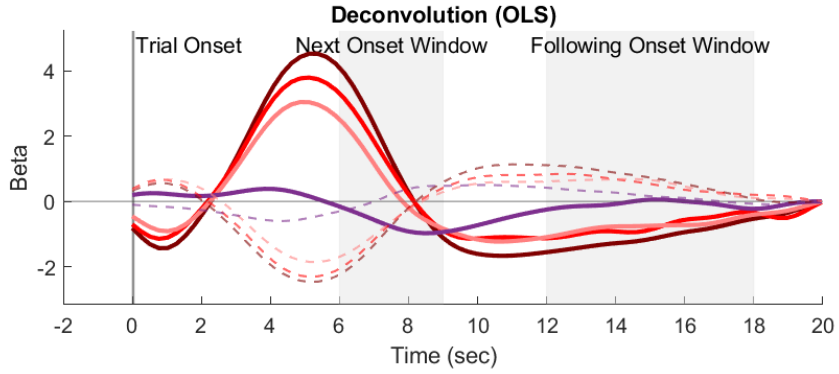


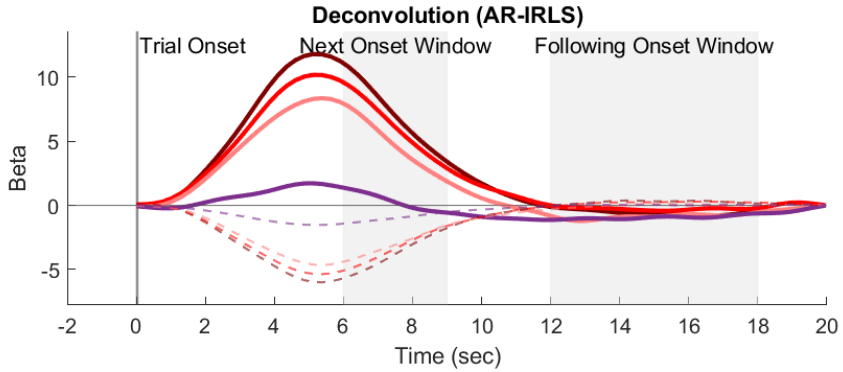




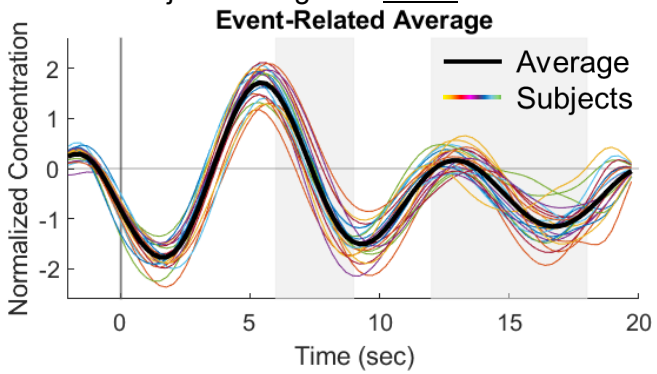
Results with OLS: Motor (Simulated)

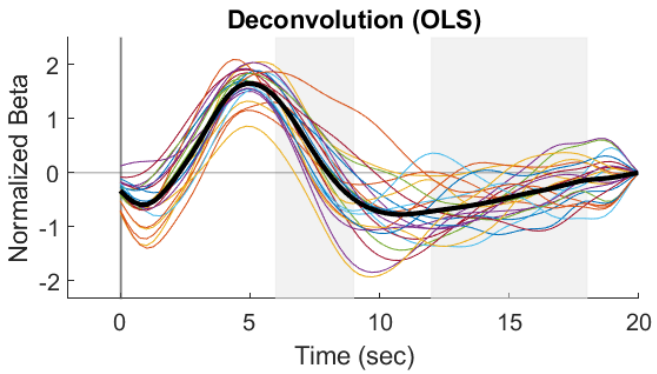


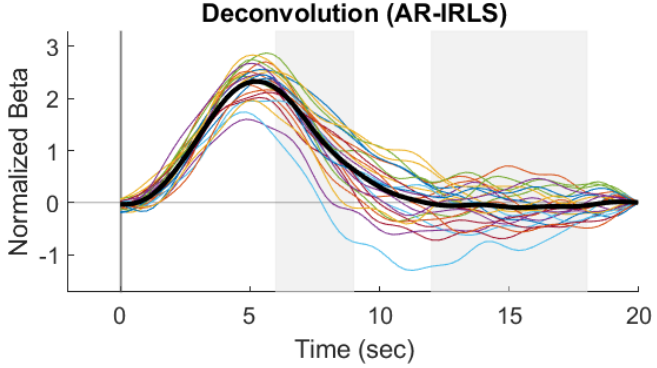




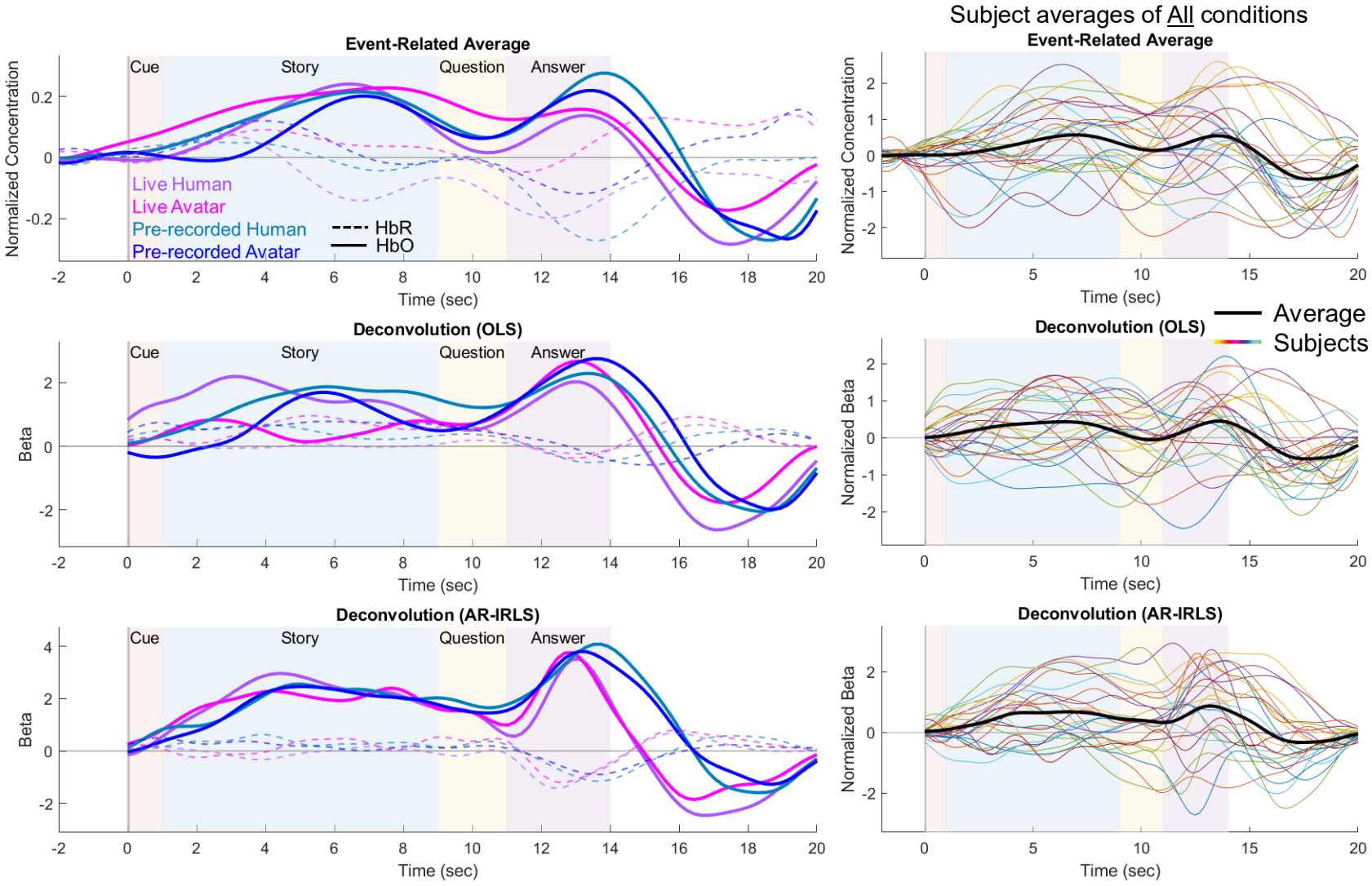
Subject averages of Motor conditions







Results with OLS: Social (Human)

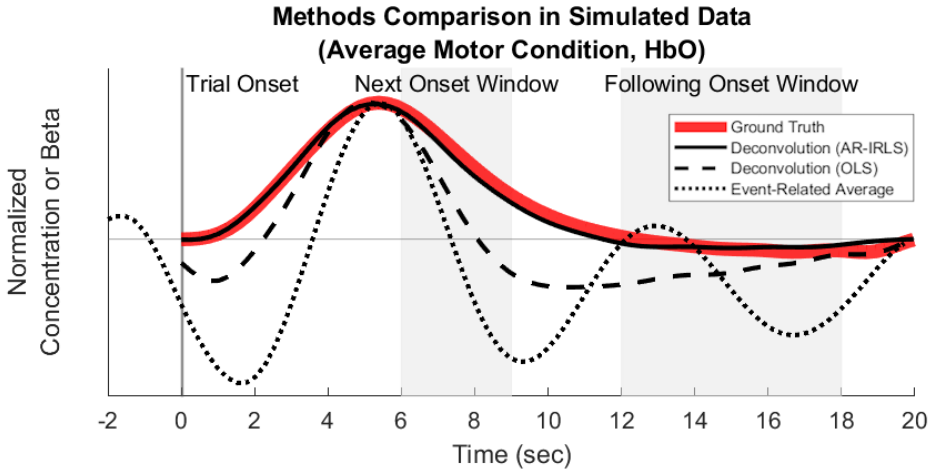


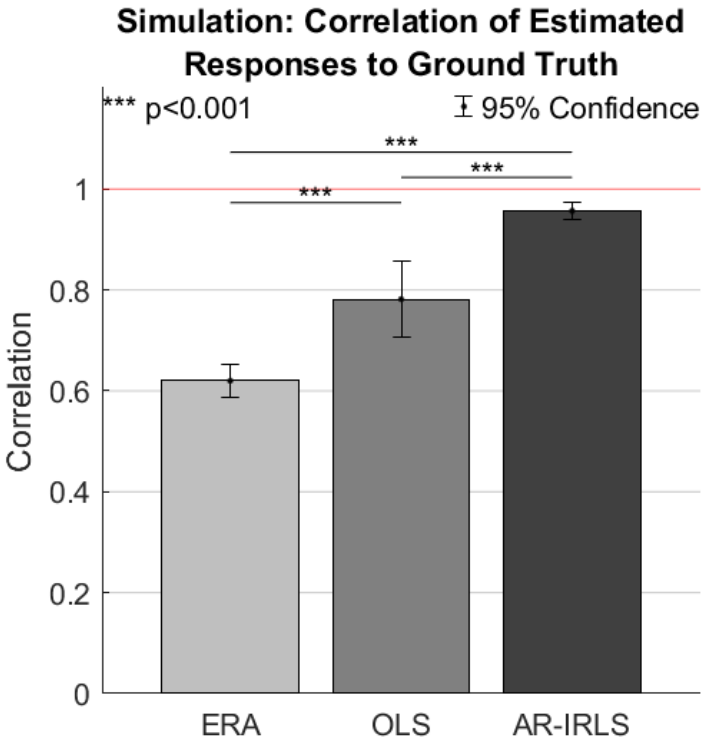
Simulation: Evaluation of Estimation Methods

Correlations to ground truth were calculated on “subject” averages

All differences were significant (Bonferroni corrected)

Deconvolution with AR-IRLS achieved R > 0.95



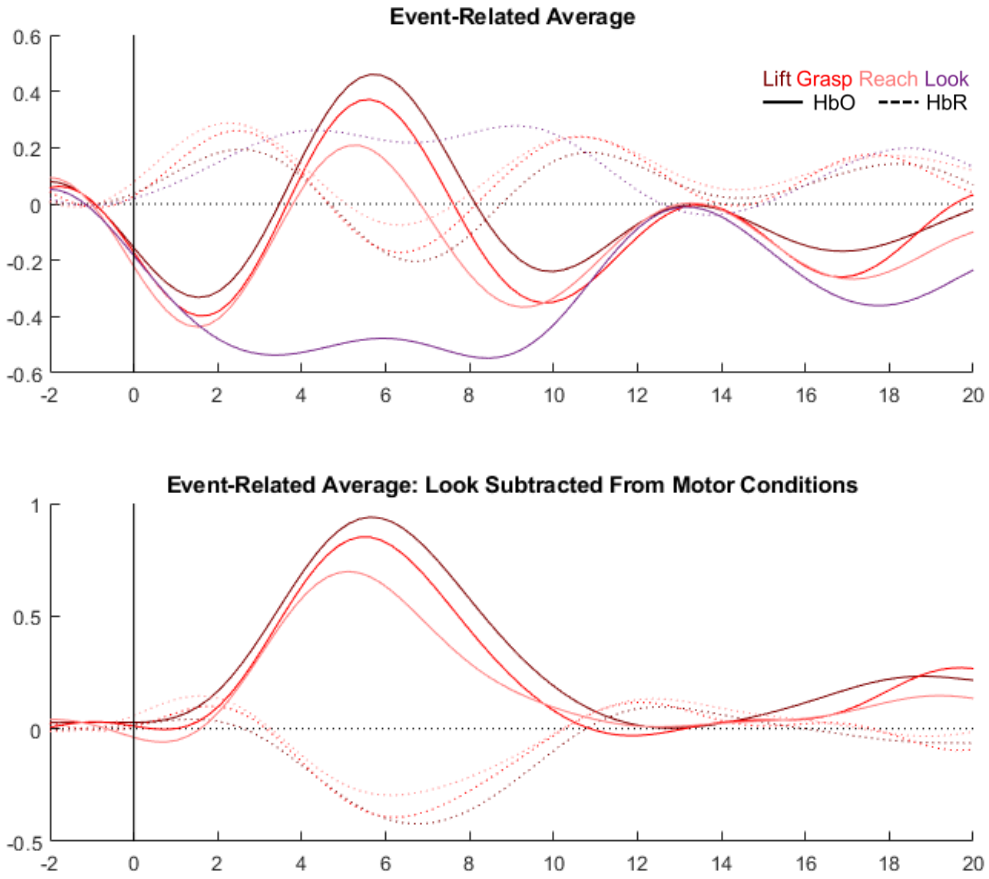


Interesting: Using Look to Correct for the Order History Effect

Note this only works due to a perfect set of circumstances: had a non-response condition (at least in M1) with a reasonable proportion, careful condition counterbalancing, etc.

We do **not** recommend designing paradigms around this (deconvolution with AR-IRLS should be used instead).

However, it is interesting that the **Look** condition in M1 provided a clear estimate of this effect.



Deconvolution Method

Deconvolution: Uses a general linear model (GLM) to estimate the evoked response by modelling events as a series of independent spike predictors beginning at the trial onsets (i.e., one predictor per timepoint per condition). The betas of the spike predictors form the estimate.