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Title: How to predict the effect of intracortical microstimulation on the neural signal?

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Abstract: Intracortical microstimulation of primary somatosensory cortex has been successfully used to elicit sensory percepts in human participants. There is a robust relationship between the behavioral response and the stimulation parameters, but the dynamical change in neural activity in response to electrical stimulation patterns remains unknown. As new technological advances allow for stimulation and recording to occur simultaneously on the same electrode, we propose several methods to discern the transfer function between the stimulation pattern, evoked neural signal, and corresponding somatic sensations. These relationships could be captured by defining specific filters or defining a dynamical model. Here we discuss the strengths and weaknesses of such methods.