Active learning of neural response functions with Gaussian processes

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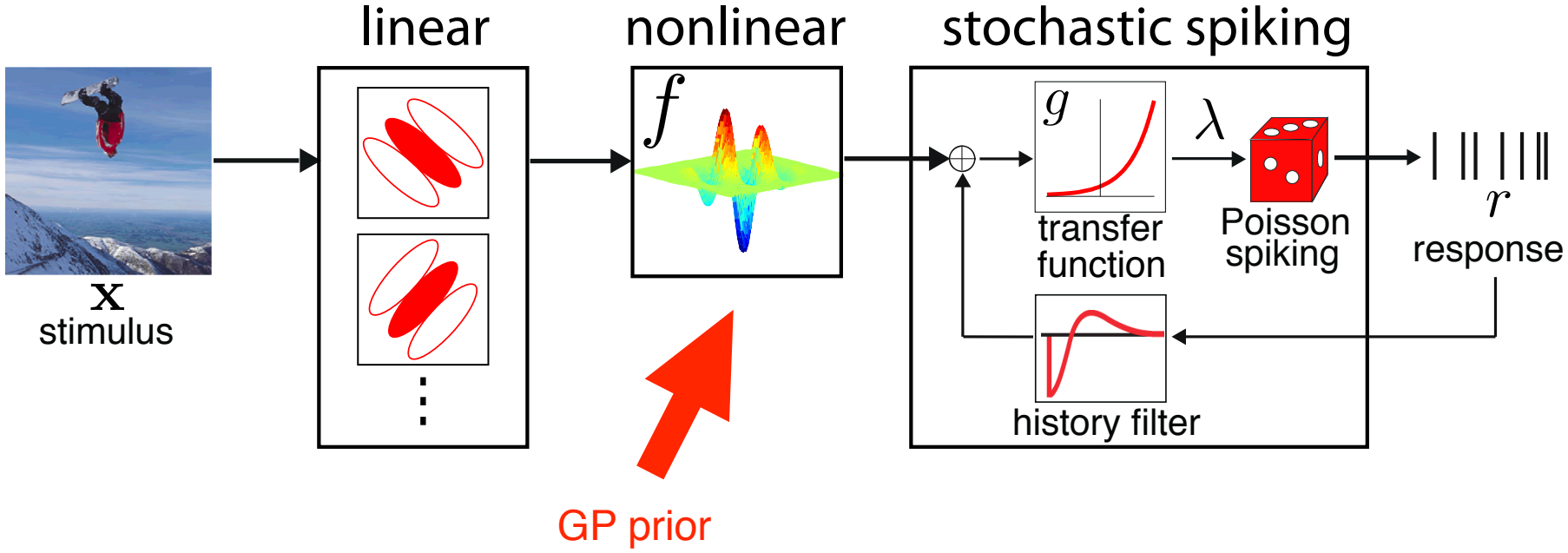
poster T020

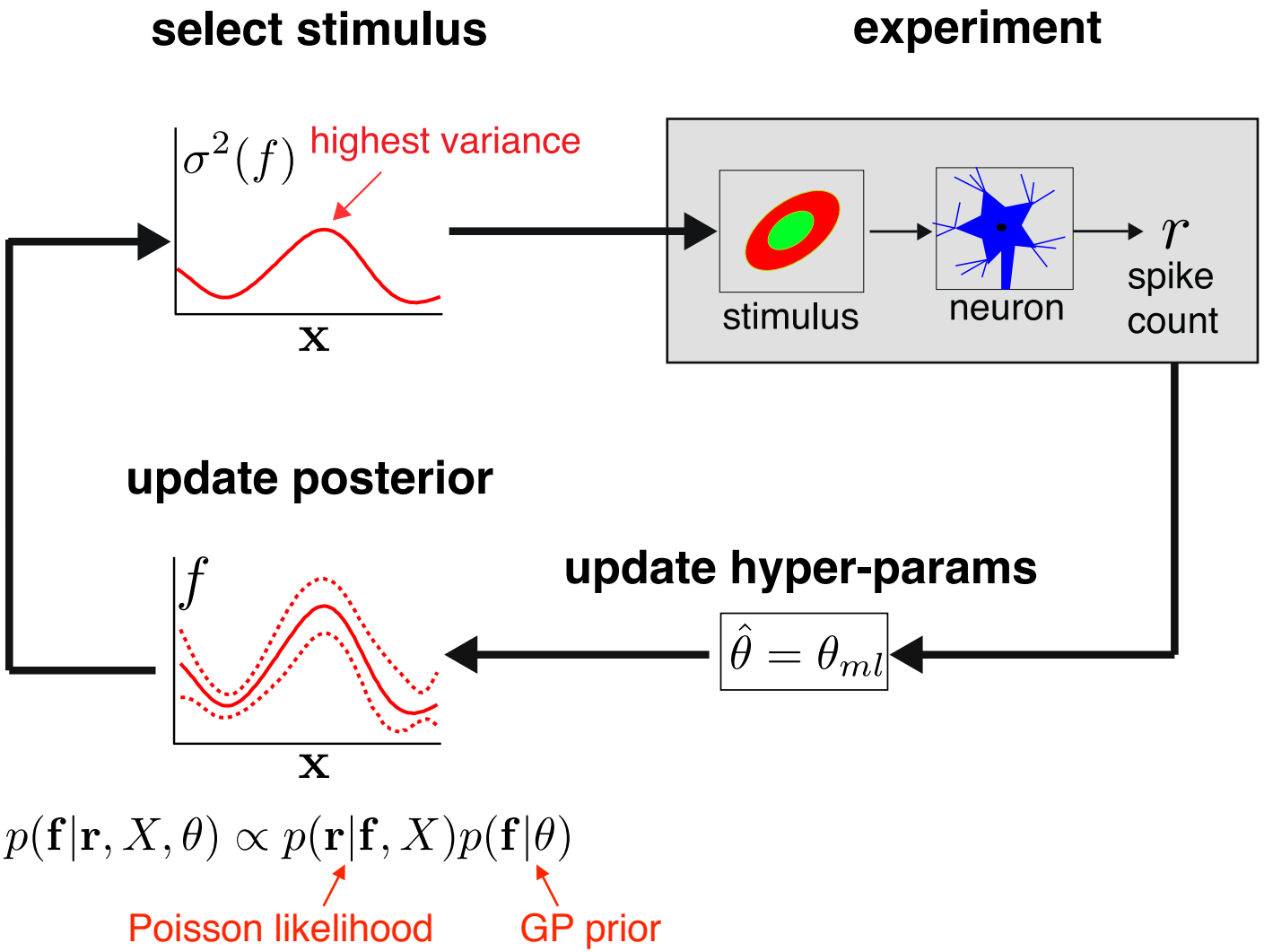
"cascade" neural encoding model



Question: how to efficiently learn neural response nonlinearities?

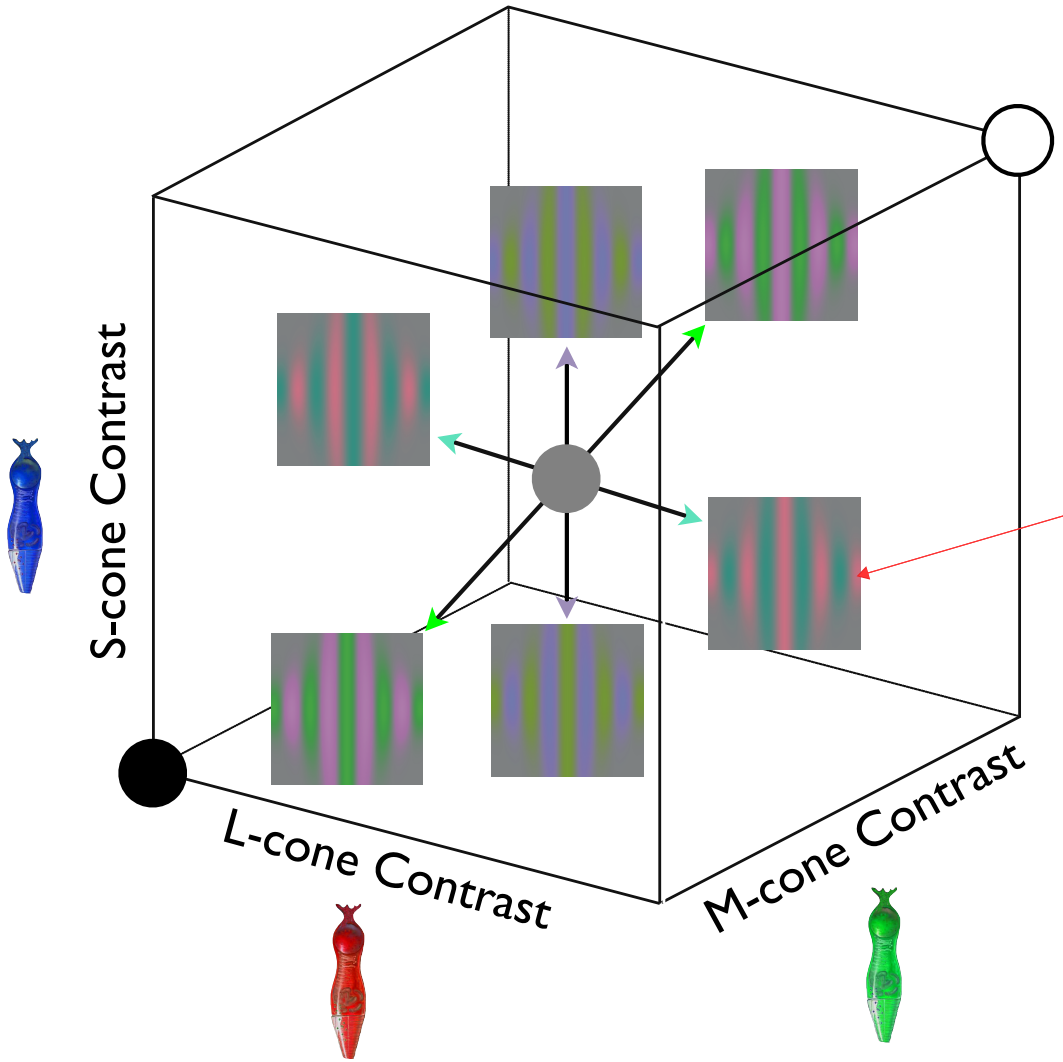
Adaptive stimulus selection

- "closed-loop" experiment
- select $\mathbf{x}$ for which $f(\mathbf{x})$ has highest uncertainty

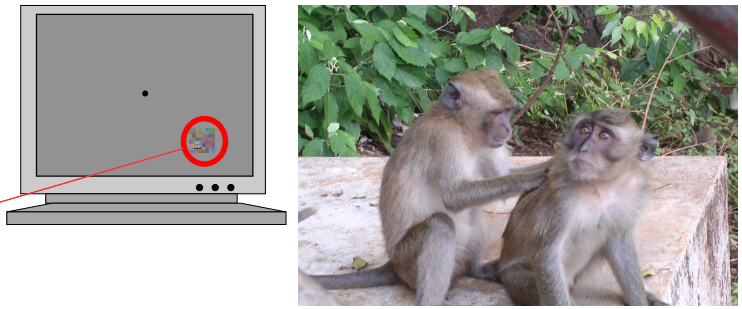


Experimental Methods

- color-tuned neurons in macaque V1
- spectrally-modulated Gabor stimuli (3D cone-contrast space)



(Horwitz lab)

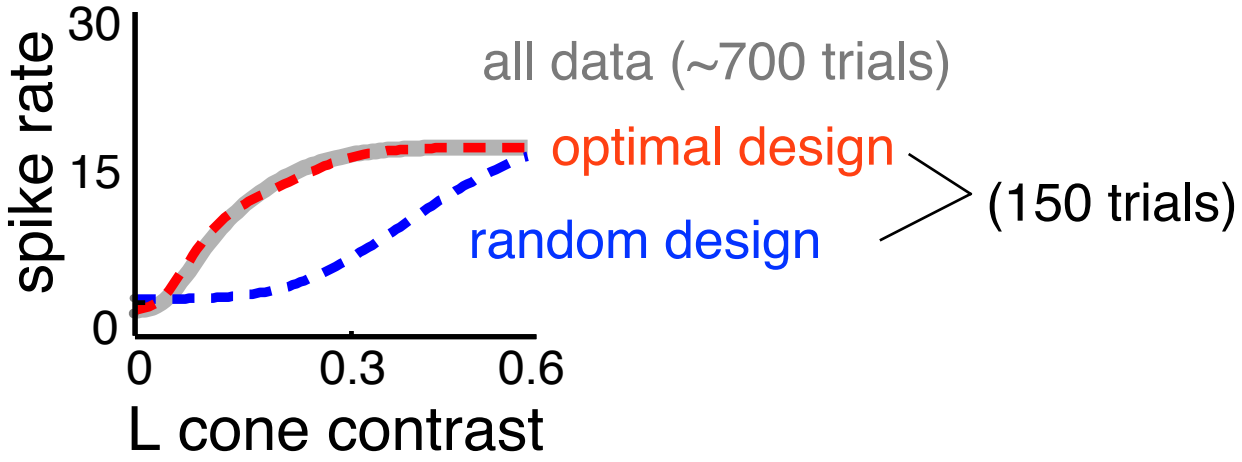


Results

For more details, visit poster T020 !

- example V1 complex cell

1D nonlinearity:



2D nonlinearity: