Linear Modeling of the Fly H1 Response

![Graphs showing velocity, response trains, filter amplitude, and velocity over time](image)
Sensitivity Analysis of the Fly H1 Response

Mean response

spectral density (deg^2/sec)

frequency (Hz)
Simultaneous Recording of EMG and Single Units in S1 Cortex

Rectified EMG

- protraction
- retraction

Unit 0
Unit 2
Unit 3

Time 1 s

100 μV

Spike/bin

Unit 0

Unit 2

Unit 3

Time Lag [ms]

Time Lag [ms]

Spike/bin
Predicting the Position of the Vibrissae (Mystatial EMG) on a Single-Trial Basis

Trial Averaged Transfer Function, $F(t)$

Measured EMG, $E_{\text{meas}}(t)$

Measured Spike Train, $S_{\text{meas}}(t)$

Predicted EMG, $E_{\text{pre}}(t)$

$$E_{\text{pre}}(t) = \int_{-\infty}^{t} dt' F(t - t') S_{\text{meas}}(t')$$