# Analyzing very large-scale simultaneous multineuronal spike train recordings

- inferring connectivity

- distinguishing common-input vs. direct synaptic connectivity (latent vs. fully-observed data)

- understanding dynamical properties of neural networks with connectivity inferred from real data

— image of multielectrode recordings in the retina courtesy E.J. Chichilnisky, Salk
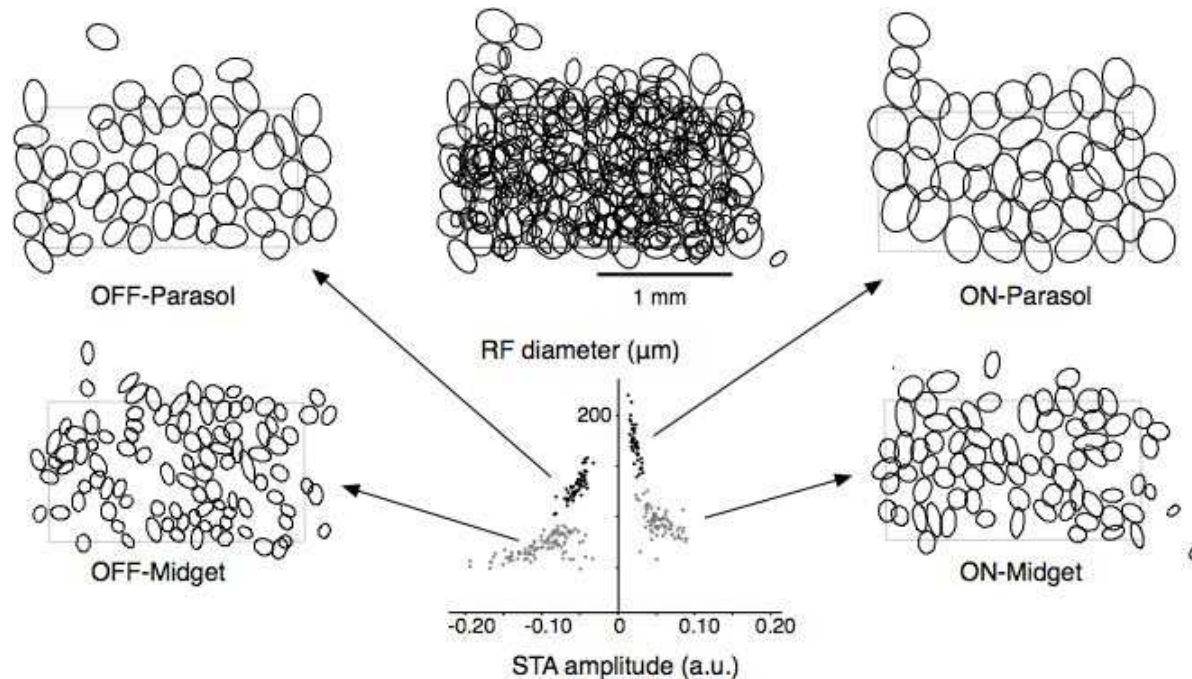
Dealing with high-resolution imaging data

— "high-resolution": single neuron and smaller

- Possible replacement for large-scale multielectrode recordings, if the temporal resolution and SNR can be increased, either through improved imaging technology or optimal statistical filtering methods

- Direct measurement and analysis of dendritic computation during synaptic bombardment *in vivo* and *in vitro*

— 2-photon image courtesy R. Yuste, Columbia