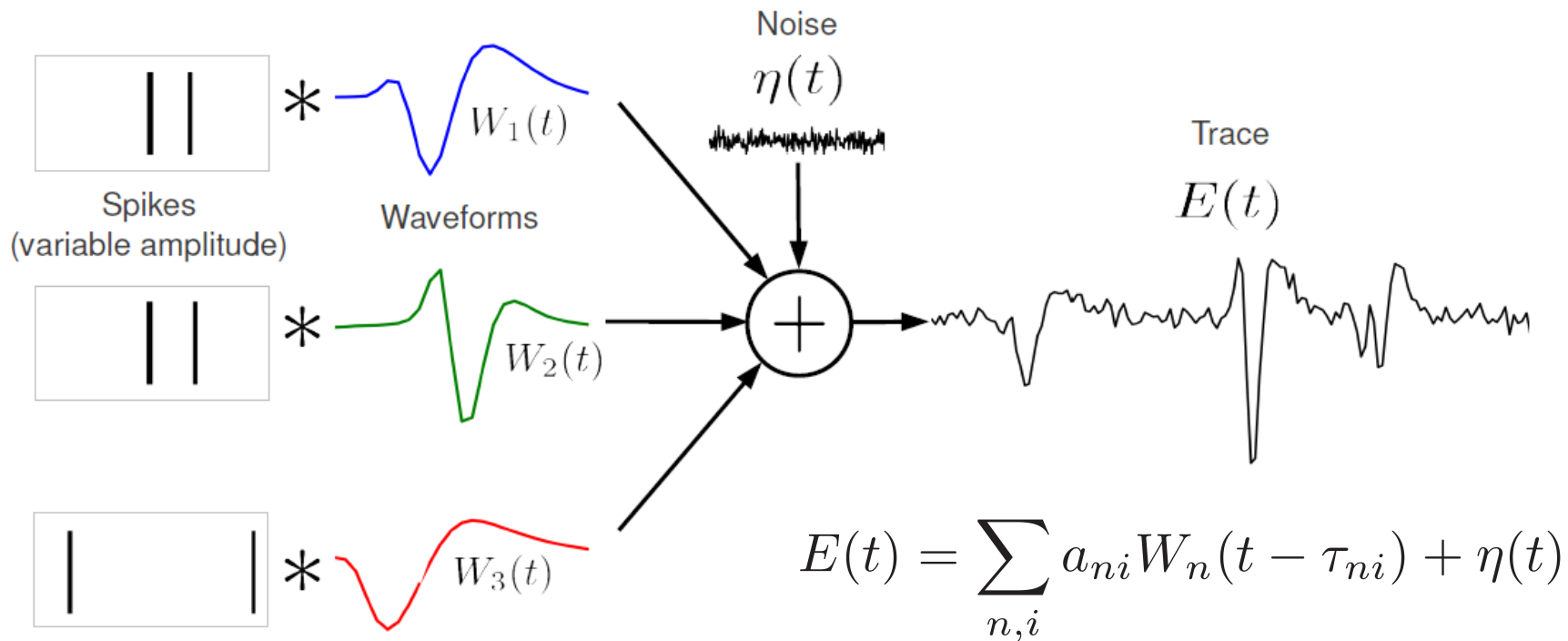


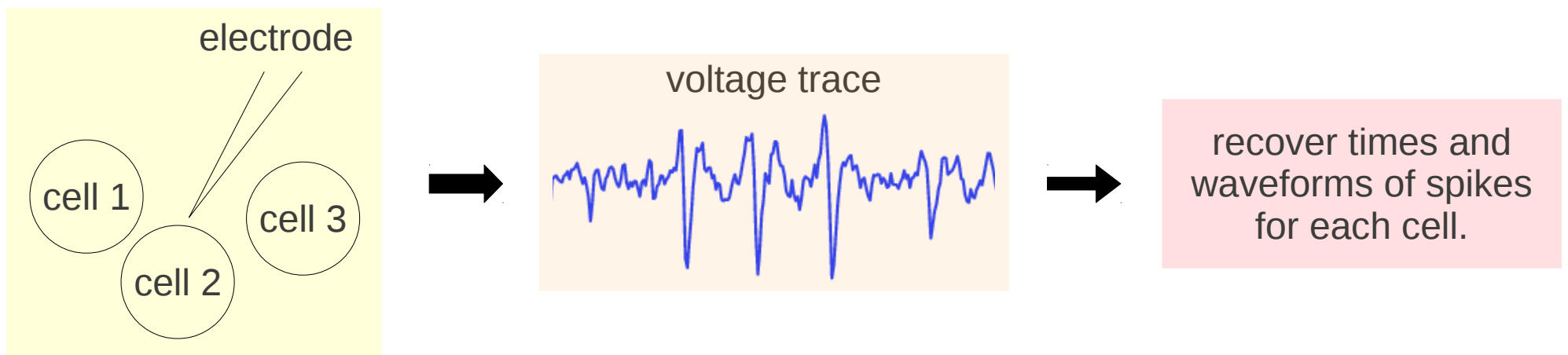
A blind deconvolution method for neural spike identification

Chaitanya Ekanadham, Daniel Tranchina, Eero Simoncelli
Courant Institute of mathematical sciences, NYU
Spotlight presentation, NIPS 2011



observed signal \approx **sparse linear** combination of **time-shifted waveforms**

radar, seismic signals, sounds, neural spikes

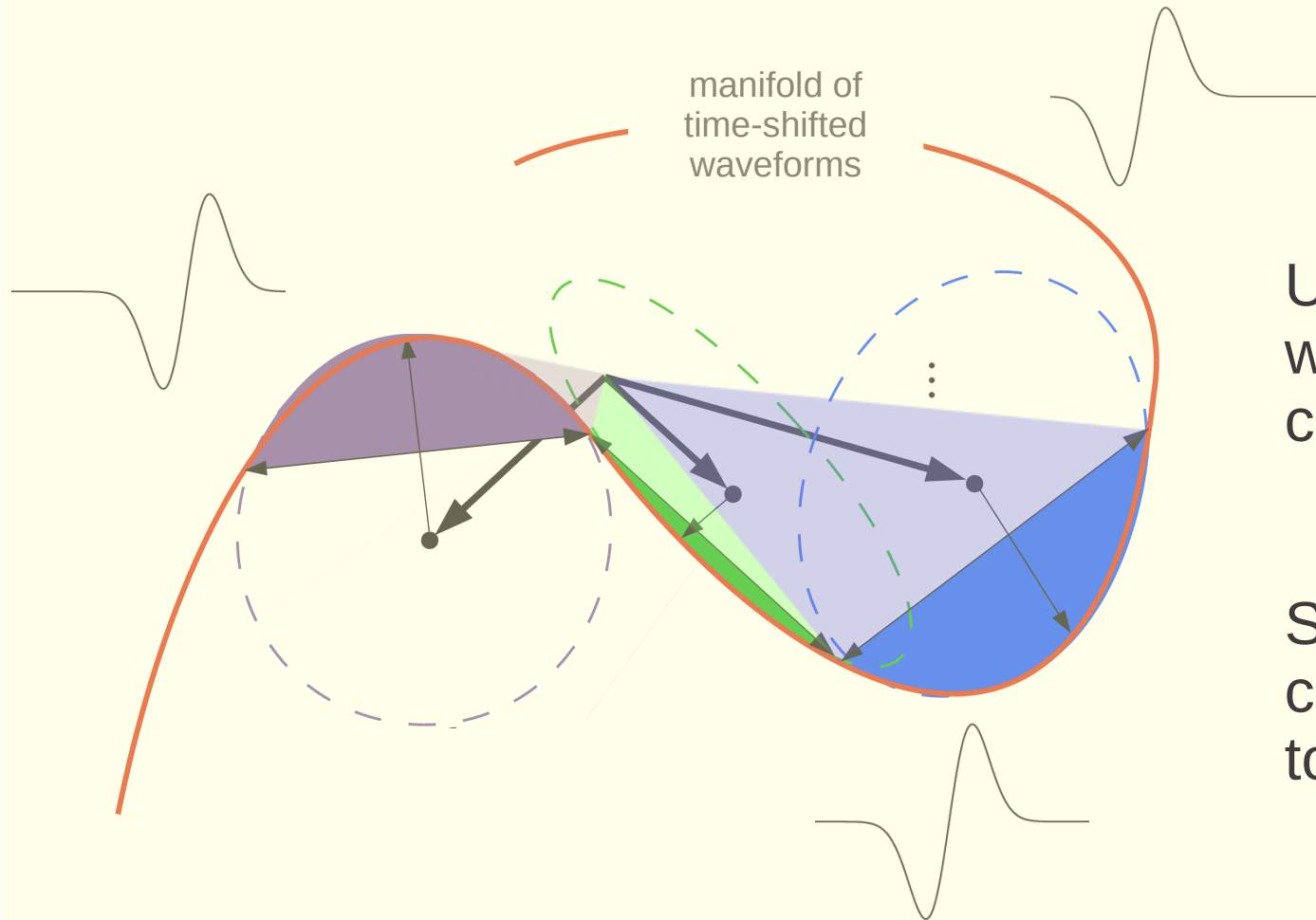


Objective: minimize (reconstruction error) + (sparsity)

solve spikes



solve waveforms



Use basis functions which interpolate continuous time-shifts

Solve basis coefficients subject to constraints

Waveforms learned from real data (Harris 2000)

