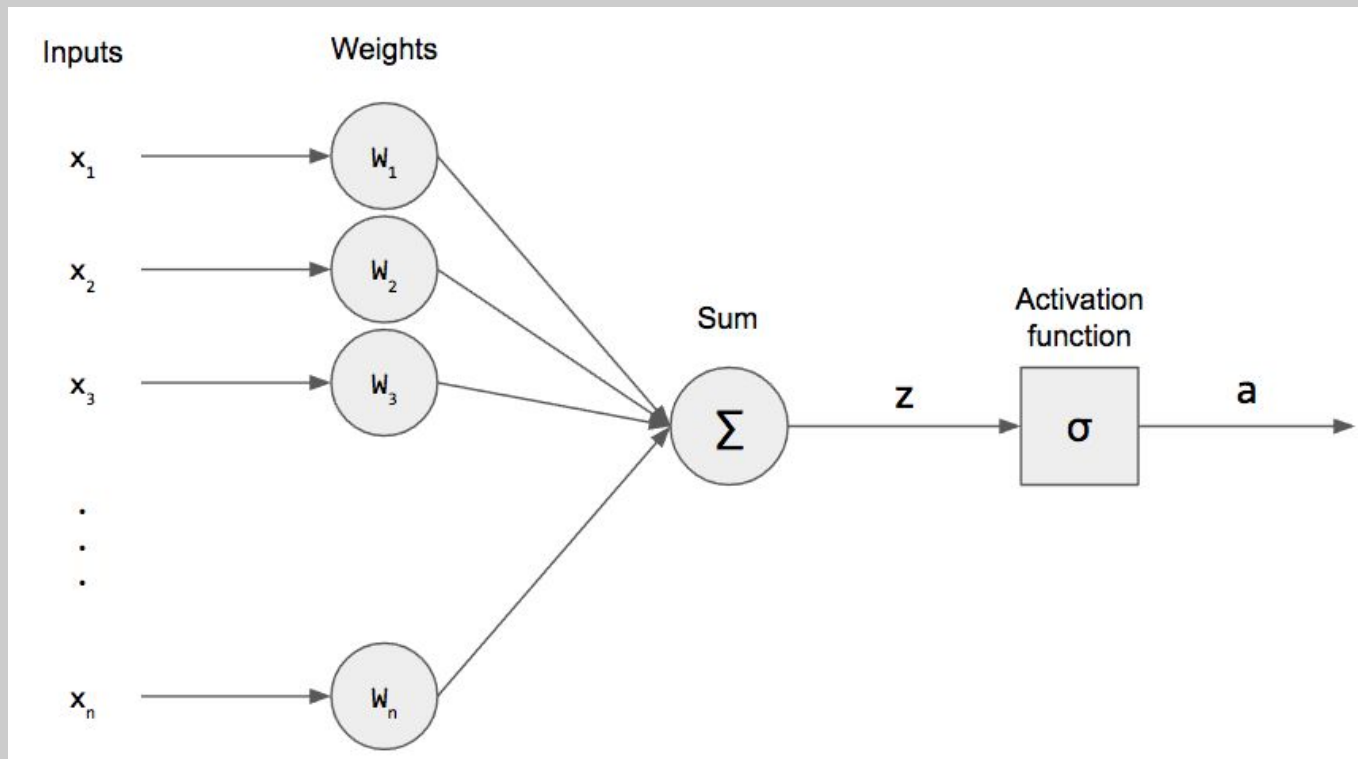# Simulating single neurons

Chao Huang

Models of single neuron
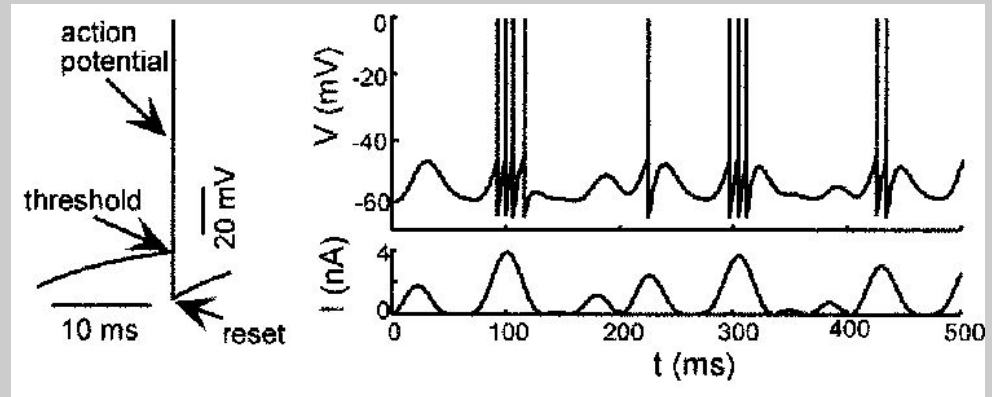
McCulloch-Pitts model

Models of single neuron
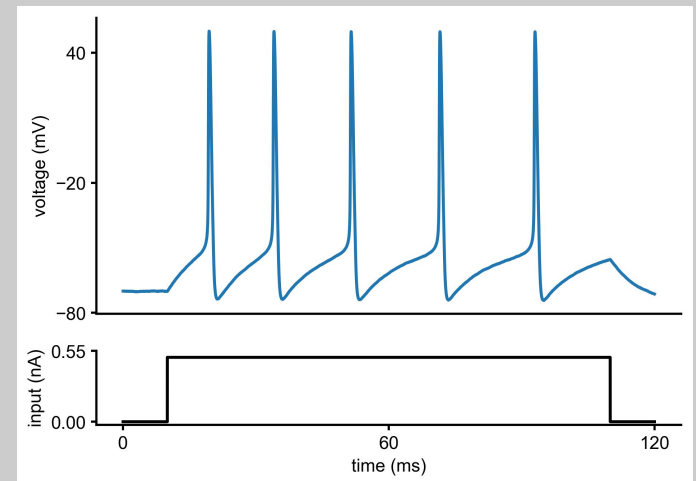
Leaky integrate-and-fire (LIF) model
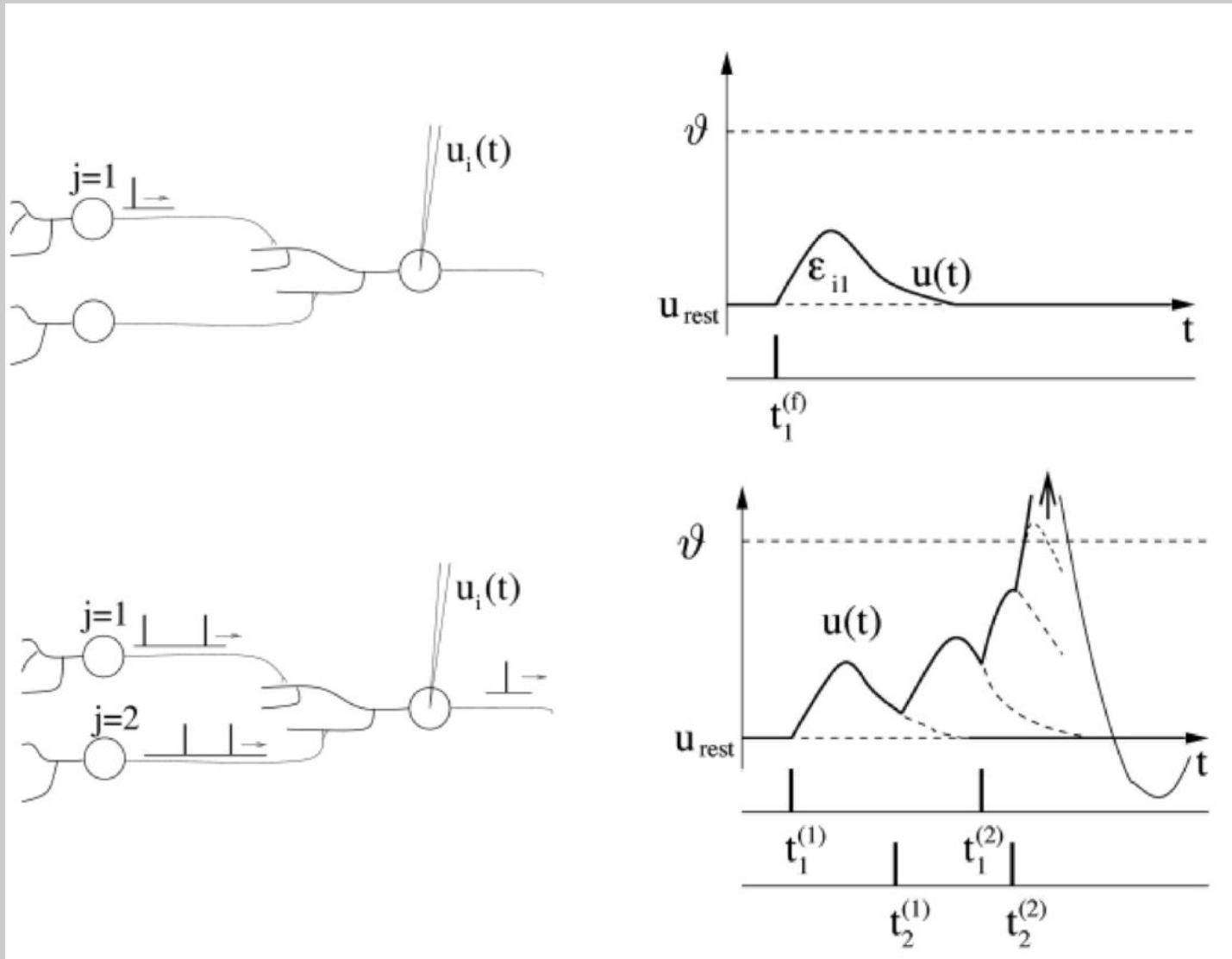
$$C_m * \frac{dV_m}{dt} = I - g_l * (V_m - E_l)$$
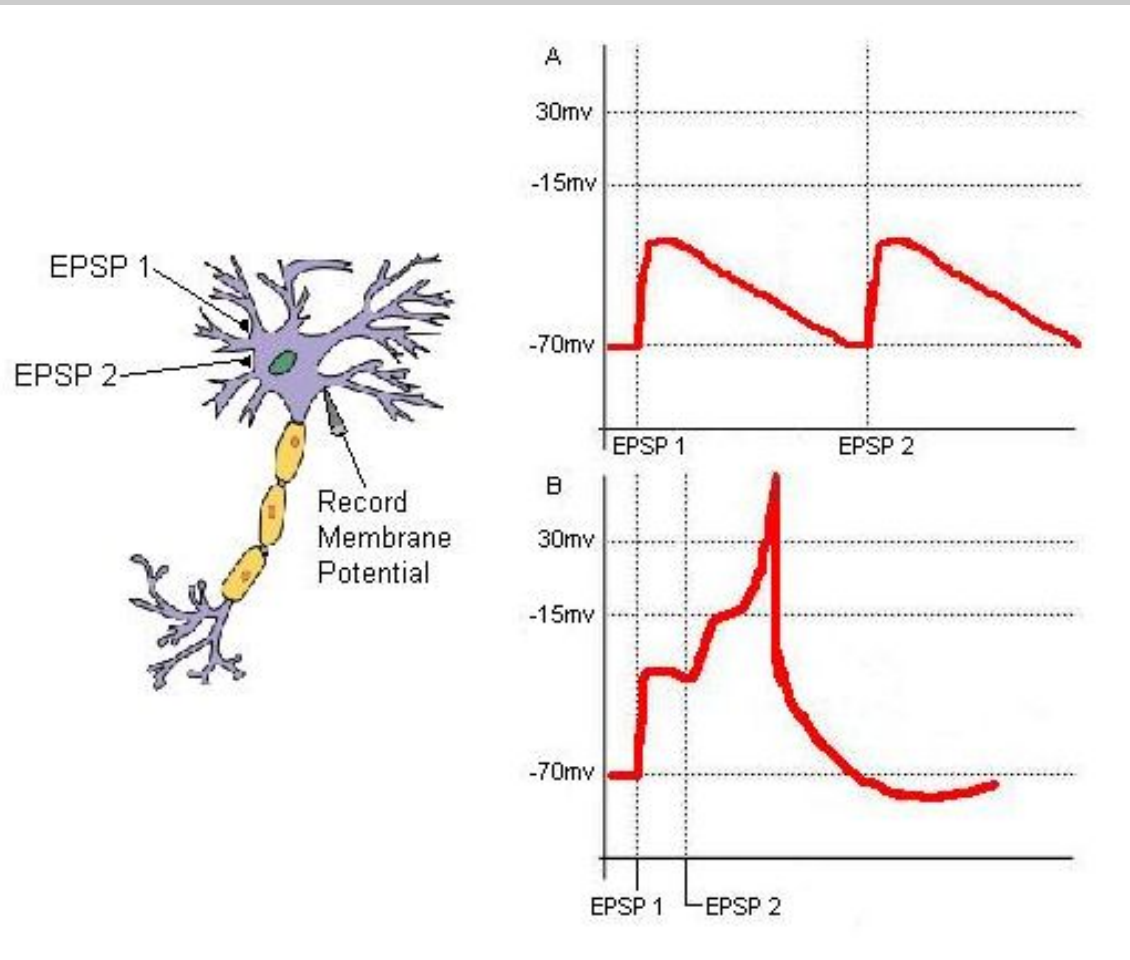

Hodgkin-Huxley (HH) model

$$C_m \frac{dV_m}{dt} = I - g_l(V_m - E_l) - g_{Na}m^3h(V_m - E_{Na}) - g_K n^4(V_m - g_K)$$
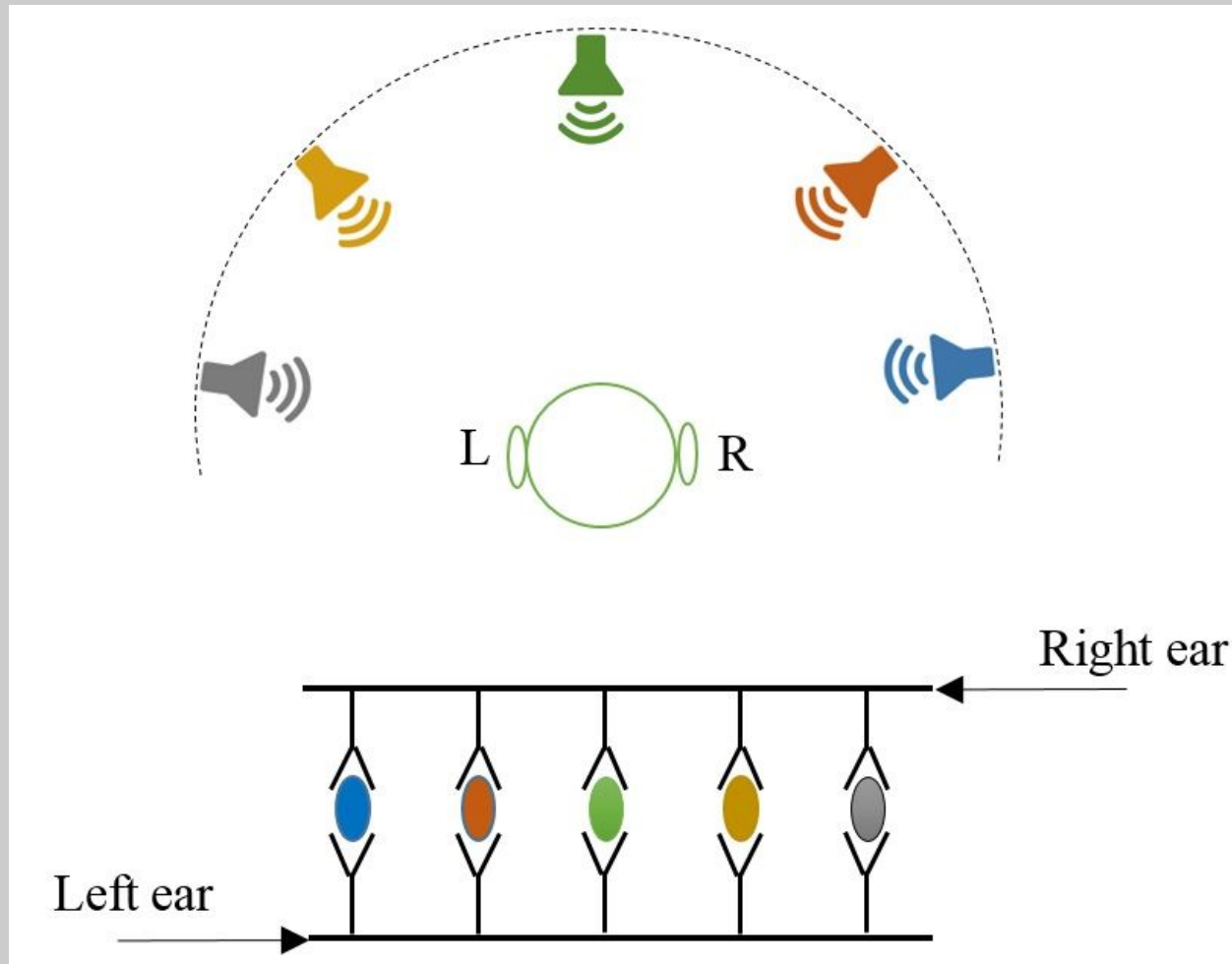
Subthreshold integration

Coincidence detection

Jeffress model for sound localization

Jeffress model for sound localization