

$$\frac{dx_i}{dt} = \frac{-x_i + u_i + \sum_{j=1}^J w_{ij}\, b_j r_j}{\tau_d}$$

$$r_i=\phi\left(x_i-a_{0_i}-c\sum_{k=1}^Ka_{ik}\right)$$

$$\frac{da_{ik}}{dt} = \frac{-a_{ik}+r_i}{\tau_k}$$

$$\frac{db_i}{dt} = \frac{1-b_i}{\tau_{rec}} - \frac{b_i\,r_i}{\tau_{rel}}$$

$$1\\$$