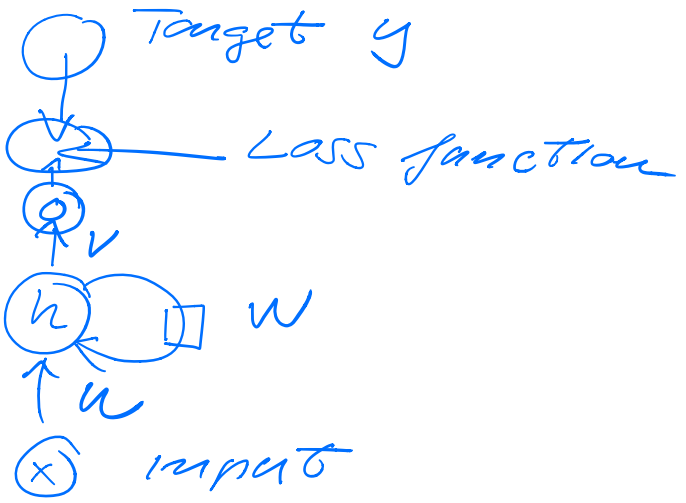
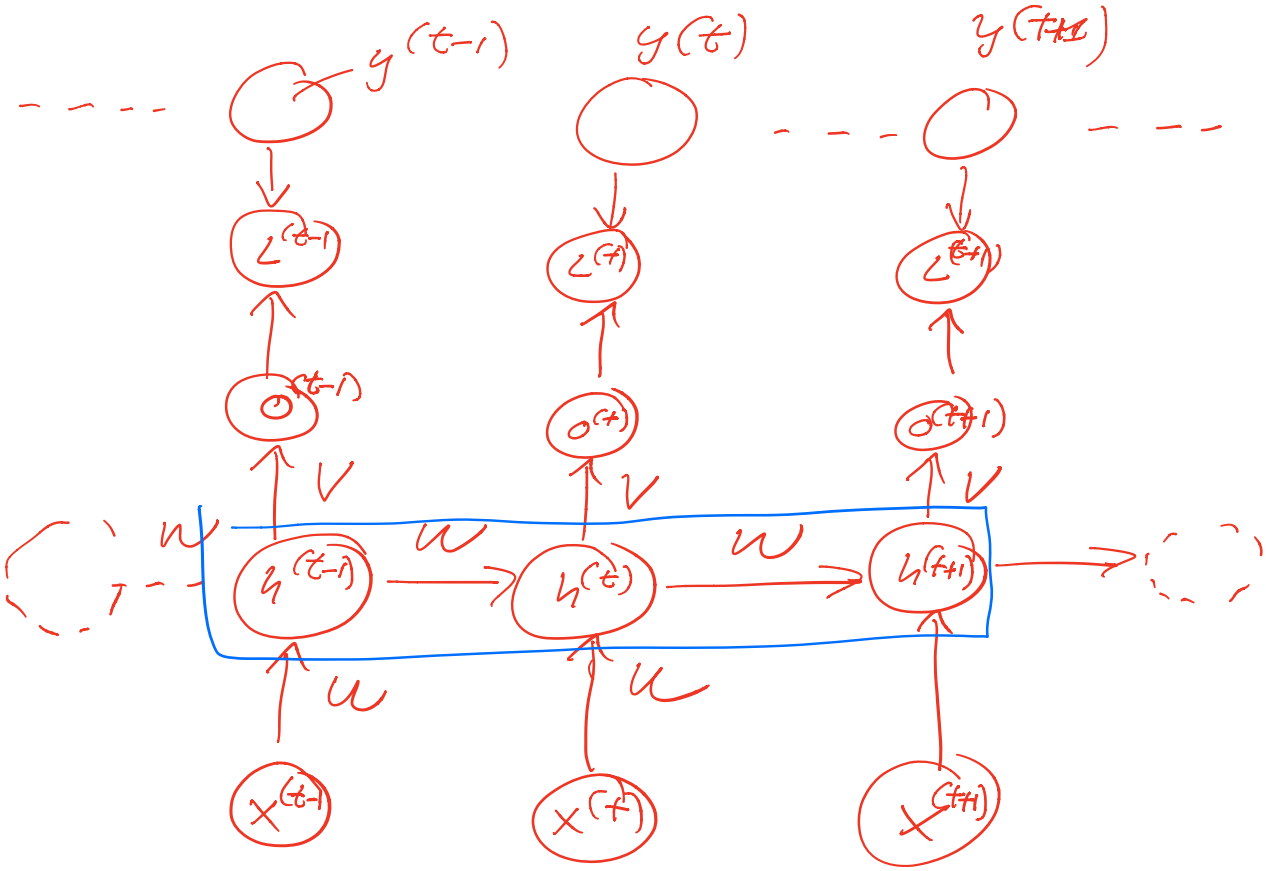
Lecture October 22

RNN – Graphical set up

Most common set up:





$$o^{(t)} = c + V h^{(t)}$$

$$\hat{y}^{(t)} = \sigma(o^{(t)}) \quad , \; softmax(o^{(t)})$$

$$L(y^{(t)}, \hat{y}^{(t)})$$

$$a^{(t)} = b + W h^{(t-1)} + U x^{(t)}$$

$$h^{(t)} = \tanh(a^{(t)}) \quad , \; \sigma(a^{(t)}) \quad , \; \text{ReLU} \ldots$$

$$\frac{d^2 g(t, g')}{dt^2} = f(t, g \ldots)$$

Example

$$m \frac{d^2 x(t)}{dt^2} = -kx$$

$$\frac{dx}{dt} = v(x, t) \qquad \frac{dv}{dt} = -\frac{k}{m} x(t)$$

$$x = x(t, v)$$

initial conditions at t_0

$$v(t_0) = v_0 \;\wedge\; x(t_0) = x_0$$