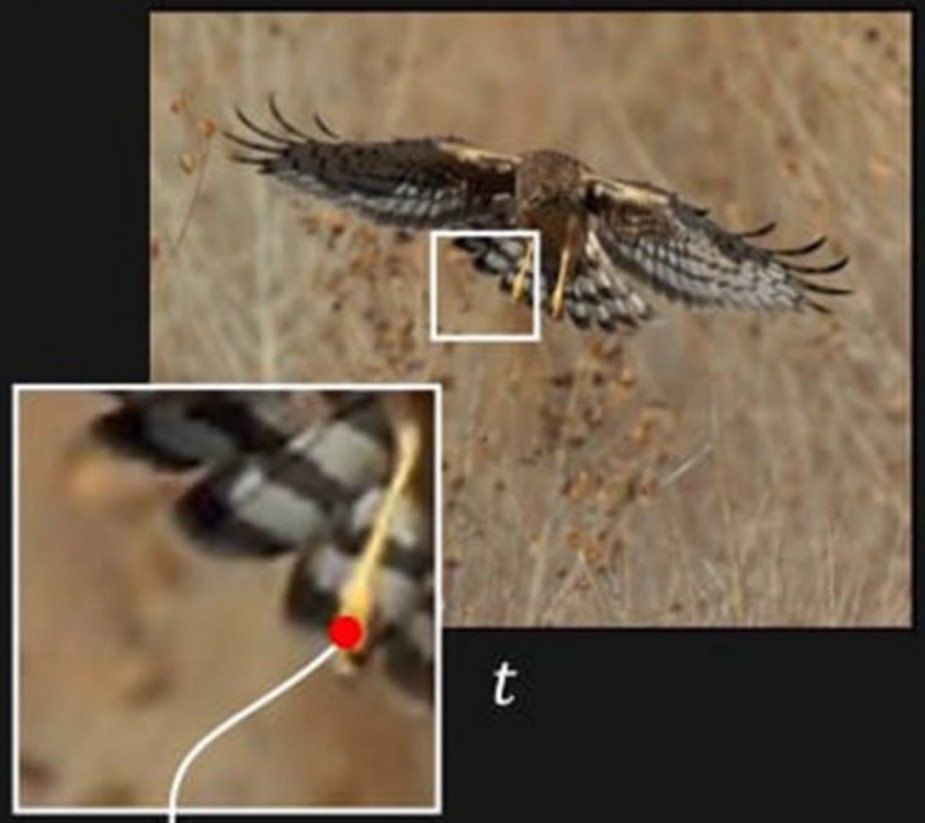
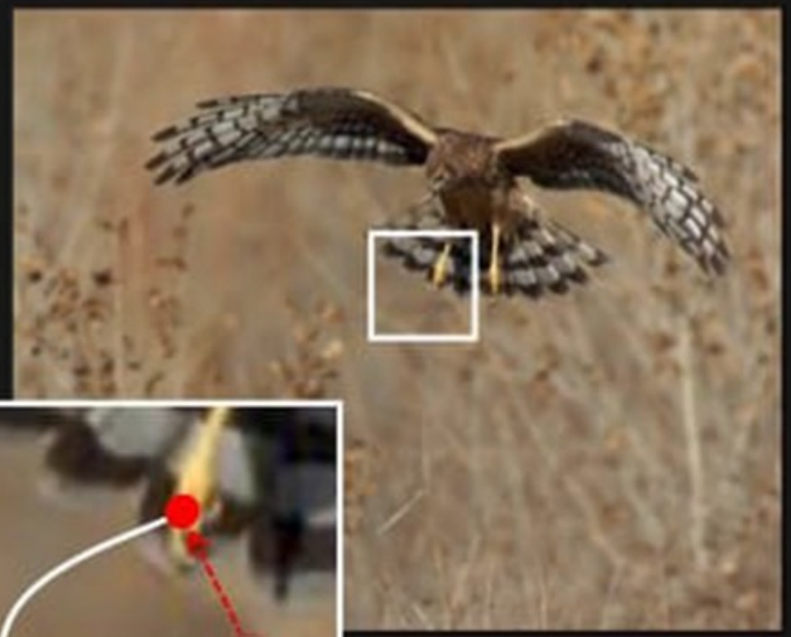
Optical Flow



t

(x, y)

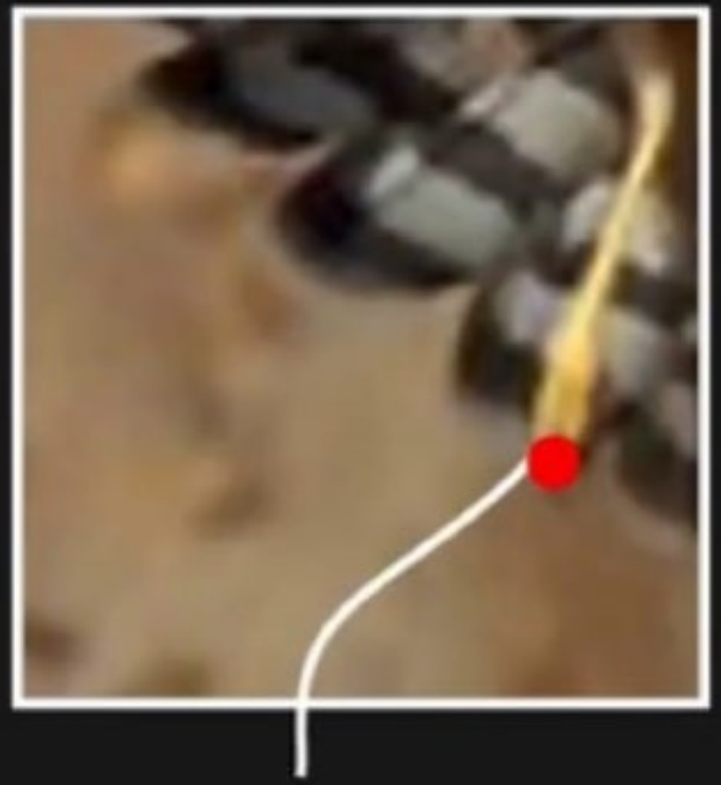


$t + \delta t$

$(x + \delta x, y + \delta y)$

Displacement: $(\delta x, \delta y)$

Optical Flow: $(u, v) = \left(\frac{\delta x}{\delta t}, \frac{\delta y}{\delta t}\right)$



$I(x, y, t)$

$I(x + \delta x, y + \delta y, t + \delta t)$

Assumption #1:

Brightness of image point remains constant over time

$$I(x + \delta x, y + \delta y, t + \delta t) = I(x, y, t)$$