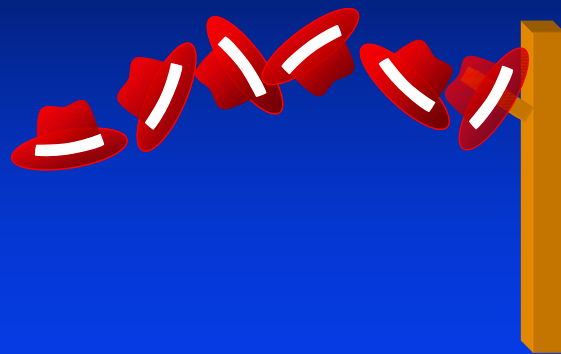


Design of Rigid-Body Motion in Computer Animation

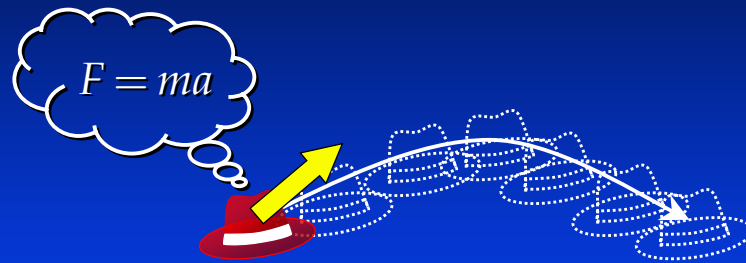
*Jovan Popović, Steve Seitz, Michael Erdmann,
Zoran Popović, Andrew Witkin*

<http://www.cs.cmu.edu/~jovan/papers/sigg00-rbedit.htm>

Animation

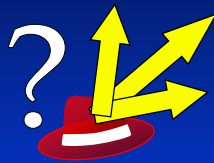


Physical Simulation



Video

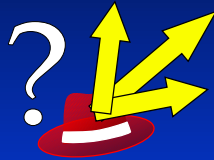
Physical Simulation



$t = 3$ secs



Physical Simulation

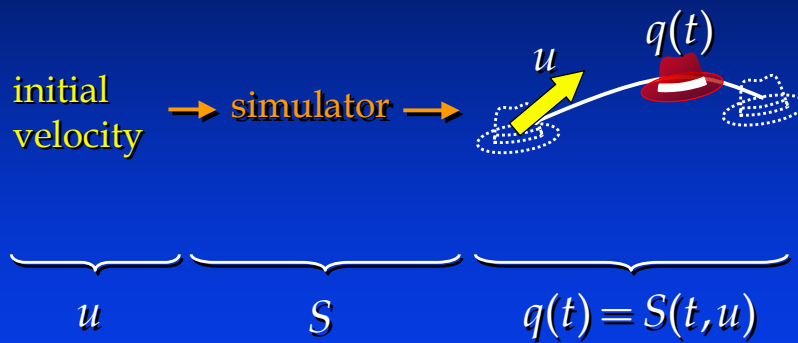


$t = 3$ secs

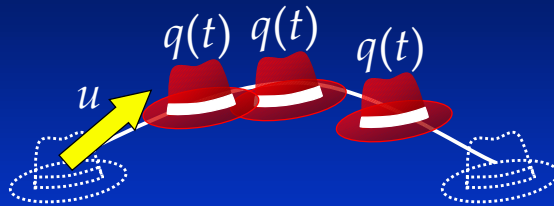


Realistic Motion
Difficult to Control
Interactive design

Physical Simulation

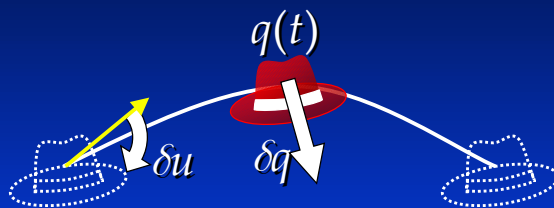


Interactive Manipulation



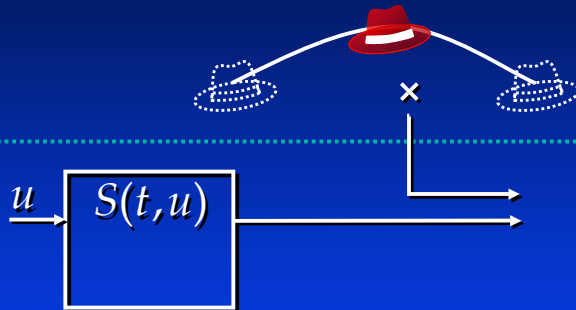
$$q(t) = S(t, u)$$

Interactive Manipulation

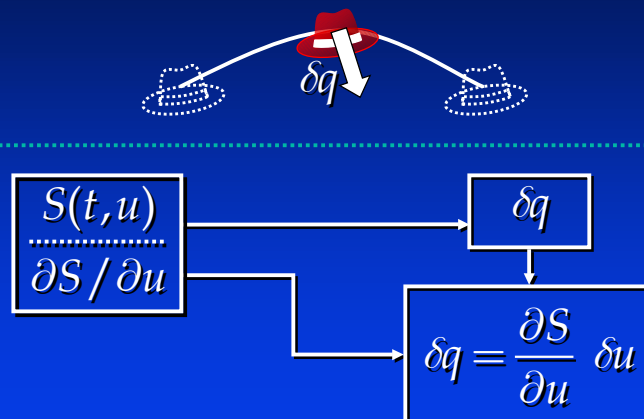


$$\delta q(t) = \frac{\partial S(t, u)}{\partial u} \delta u$$

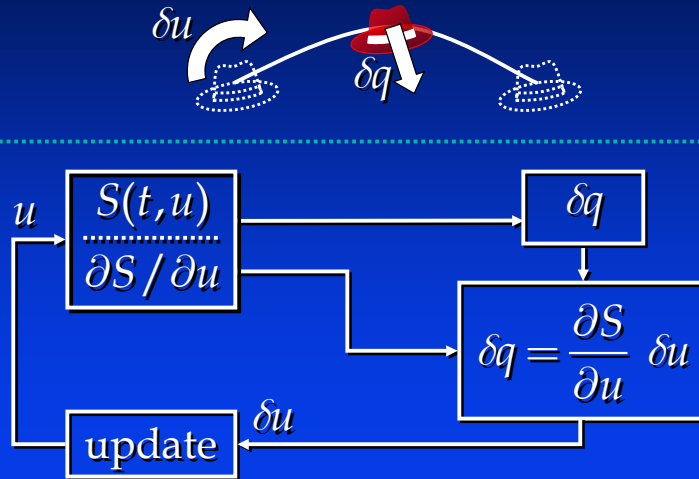
Interactive Manipulation



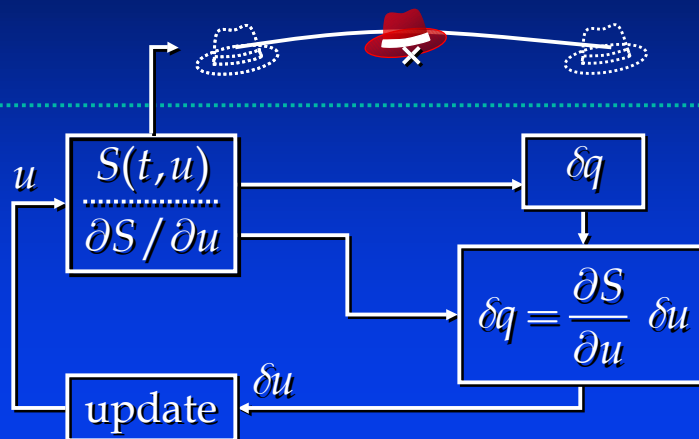
Interactive Manipulation



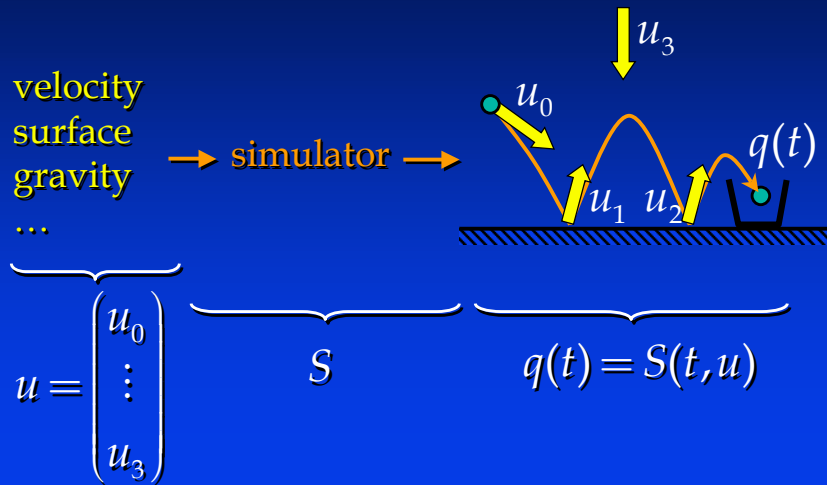
Interactive Manipulation



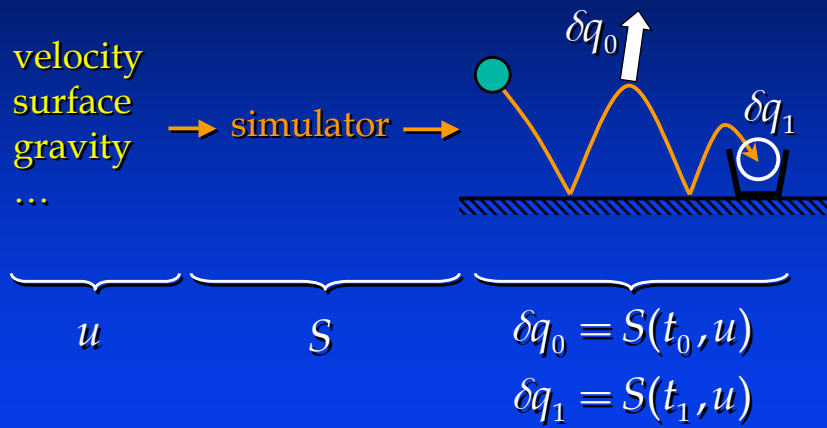
Interactive Manipulation



More Control



More Constraints



More Bodies

