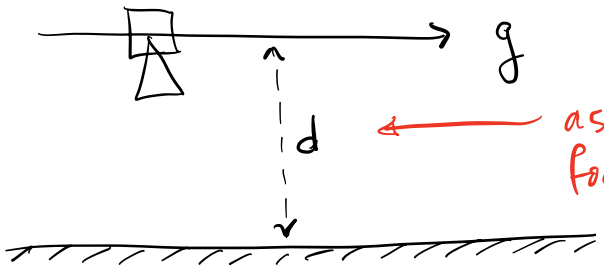
Single moving Camera example



Dynamics

$$x = \begin{bmatrix} g \\ d \end{bmatrix}$$

$$\dot{x} = \begin{bmatrix} g + u \\ d \end{bmatrix} = \begin{bmatrix} g \\ d \end{bmatrix} + \begin{bmatrix} 1 \\ 0 \end{bmatrix} u$$

$f_d(x)$ $f_u(x)$

$$\dot{x} = f_d(x) + f_u(x) \cdot u$$

System is linear, so we can also write:

$$= \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} x + \begin{bmatrix} 1 \\ 0 \end{bmatrix} u$$

Measurement

$y =$ optic flow i.e. image angular velocity

$$= \begin{bmatrix} g/d \end{bmatrix}$$