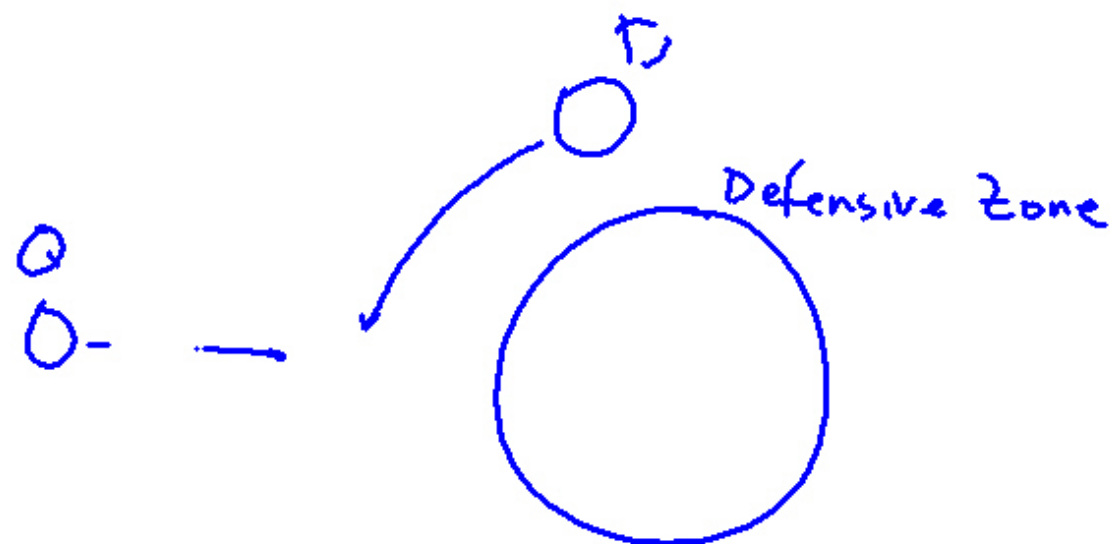


LPE Reading Group
31 July 2001

Download paper on RoboFlag Drill from
<http://www.tam.cornell.edu/~earl/LPE>

D:



Transitions:

position (p', t)

Eff: $p_0 := p;$
 $p := p';$
 $t_0 := t_{now};$
 $t_{now} := t;$

$$V = \frac{p - p_0}{t_{now} - t_0}$$

start (p_0, v_0)

Eff: — figure out u .
 set u

state

$p_0, p, v \in \mathbb{R}^3$
 $t_0, t_{now} \in \mathbb{R}^+$
 $u \in \mathbb{R}$

drive (u)
 Pre: $u = u'$

D actions

input start (p, v) $p, v \in \mathbb{R}^3$

output drive (u) $u \in \mathbb{R}^3$

input position (p) $p \in \mathbb{R}^3$

time $\tau(t)$ $t \in \mathbb{R}^+$

position (p)

Eff: $p_0 := p_{now}$
 $p_{now} := p$
 $v := (p_{now} - p_0) / \Delta t$

start (p_q, v_q)

Eff: figure out u — est. p_q^n, v_q^n

drive (u)

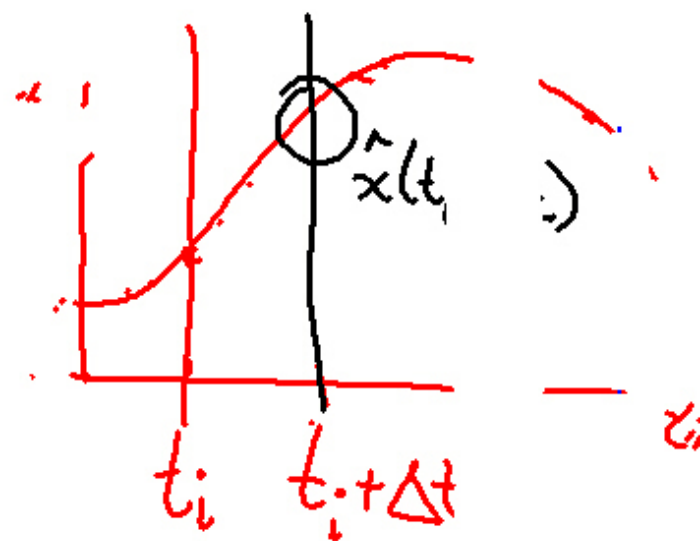
Pre: $u' = u$

drive $\in [\Delta t, k \Delta t]$

interception $\in [\Delta t, k \Delta t]$

interception

Pre: $|p_q - p_{now}| < d$



$u(t), t \in [t_i, t_i + k \Delta t]$

Sensor
position (p)

Eff:

$p_{now} := p$

Pro: interception

Pre: $|p_q - p_{now}| < d$

Eff: $v := 0$

Thm

interception
happens

Sensor
opponent (p_q, v_q')

Eff:

$p_q := p_q'$
 $v_q := v_q'$

drive (v)

Pre: control

drive (v)

Pre:

figure out v
 $v' = v$

Sensor. Position

output position (p)

Pre: p is correct

drive $\in [\Delta t, k\Delta t]$

position $\in [\Delta t, \Delta t]$