Swarm



Torus



Better torus:



Dynamic



Highly



**Notation Notes:**

N individuals (1...i...N)

c = position vectors

v = unit vectors

t time steps

\tau = .1s

\alpha = viewing radius

Theta - turning

S = speed

Error = 0

n  neighbors

d = desired\_direction d\_i(t+\tau) - why?

r\_r = zone of repulsion

If someone within distance r\_r:

   d\_r(t+\tau) = -\Sigma{j!=i}{n\_r} r\_ij(t)/|r\_ij(t)|

   rij = cj - ci / | cj - ci | (unit vector in the direction of neighbor j)

fix radius of repulsion at 1

play with orientation/attraction radii (with respect to repulsion)