



Relative position  
 $r$

speed  $v$



speed  
 $s$

Possible  
Intercept point  
 $z$

1. Solve for  $t$  where  $t > 0$

$$\|r + v * t\| = s * t$$

2. calculate aim point  
 $\text{target\_pos} + v * t$

3. desired heading is  
Aim point – interceptor pos

# Potential Issues

- Simulation Fidelity vs. Real Aerodynamics (wake turbulence, nonlinear aerodynamics)
- Sensor Assumptions vs. Operational Reality
- Target Behavior Modeling
- Actuator and Control Constraints Ignored or Idealized
- Transition Between Radar and Vision Guidance
- Environmental Effects Not Modeled (wind shear, gusts...)