

# Challenge 8: Presentation Skills

Andrew Logue

# Option 1: Flight

## Three phases of flight:

### Phase 1 - Lift-off

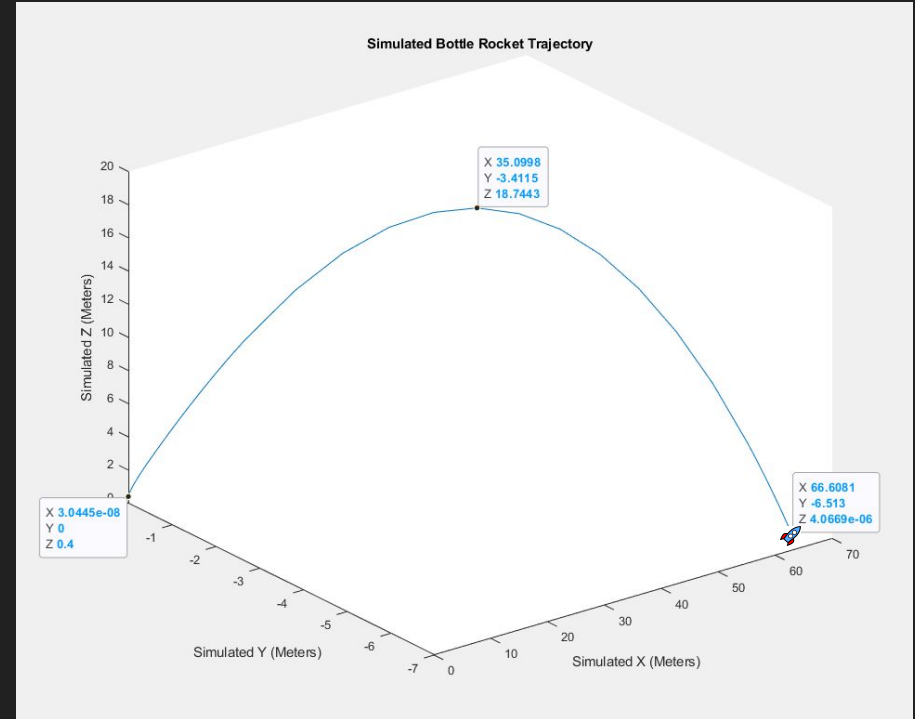
The bottle rocket shoots into the sky!

### Phase 2 - Apogee

The bottle rocket has reached its peak altitude of approximately 18.7 meters, and has 0 velocity in the Z axis

### Phase 3 - Landed

The bottle rocket has landed and is now no longer in motion. The trajectory graph shows that it traveled 66.6 meters away from the launch site in the X direction, and -6.5 meters in the Y direction



## Option 2: FBD

### Forces acting on bottle rocket (during flight):

**Drag:** The force of the surrounding air on the body of the rocket, opposing and parallel to the thrust force

**Lift:** The force of the surrounding air on the body of the rocket, opposing the weight force and perpendicular to the drag force

**Thrust:** The force of the propellant system on the rocket (pressurized water)

**Weight:** The force of gravity ( $g$ ) on the rocket

