Presentation started successfully!
Multi-robot navigation in cluttered and dynamic environments

A FORMATION-BASED APPROACH BY
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Control Approach
PSO
Simulation results

STATIC OBSTACLES
Fitness for static obstacle avoidance

**Fitness**

- **Value**
  - Velocity: Blue
  - Orientation: Orange
  - Cohesion: Yellow
  - Instantaneous: Black
  - Mean over simulation: Red

**Position**

- **Y position [m]**
- **X position [m]**

  - Center of swarm: Red
  - Leader: Blue
Simulation results

DYNAMIC OBSTACLES
Fitness for dynamic obstacle avoidance

![Graph showing fitness over simulation time](image1)

![Graph showing position over time](image2)
Real life results

STATIC OBSTACLES
Conclusion

- An interesting control architecture was designed
- Simulation lead to good performance of the swarm
- The real-life implementation was not successful, mainly due to coarse IR communication