WP5: Navigation in the air and interaction with other traffic

Nicolas Dousse, Felix Schill, Jean-Christophe Zufferey and Dario Floreano

http://www.mycopter.eu

Challenges in automation

- Crowded sky

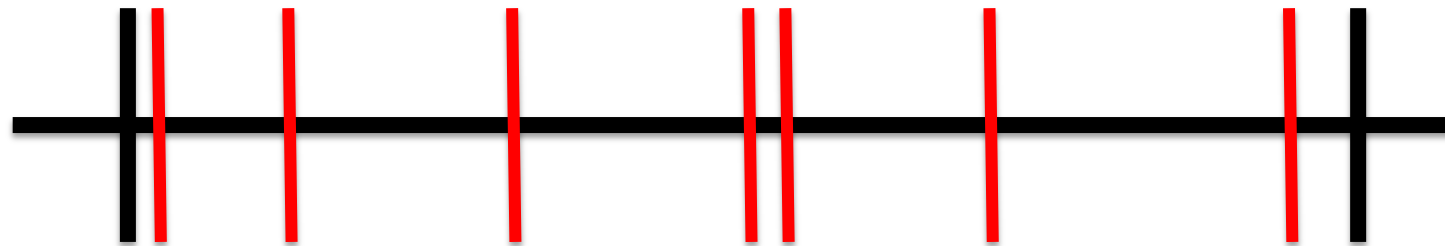Risks of collisions

Comfort issues

Motivation – Bio-inspiration

Helbing et al., *Environment and planning B,* 2001

Minimizing physiological discomfort
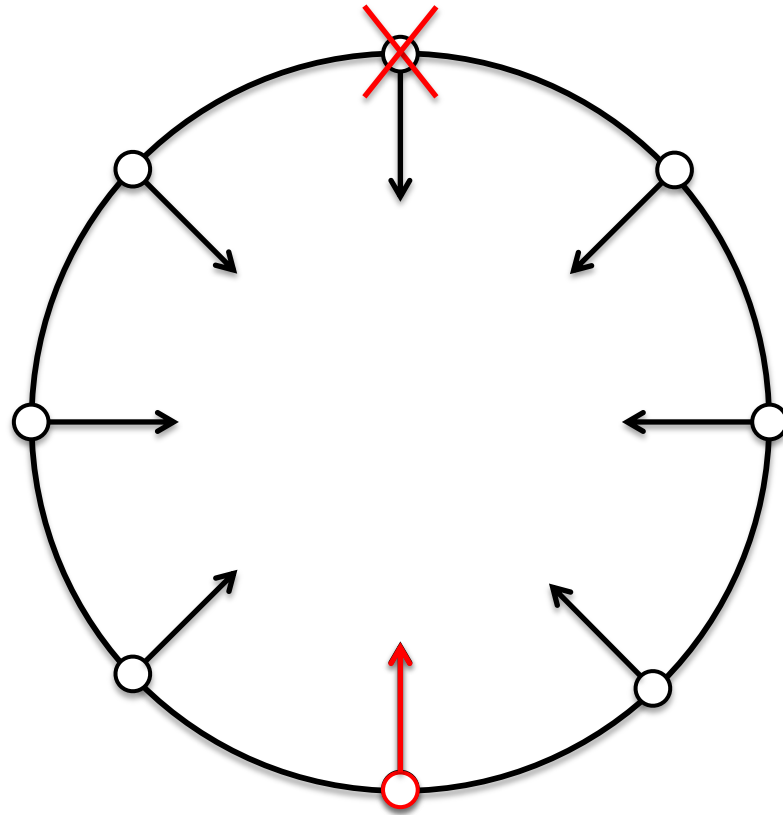
- User-defined level of comfort
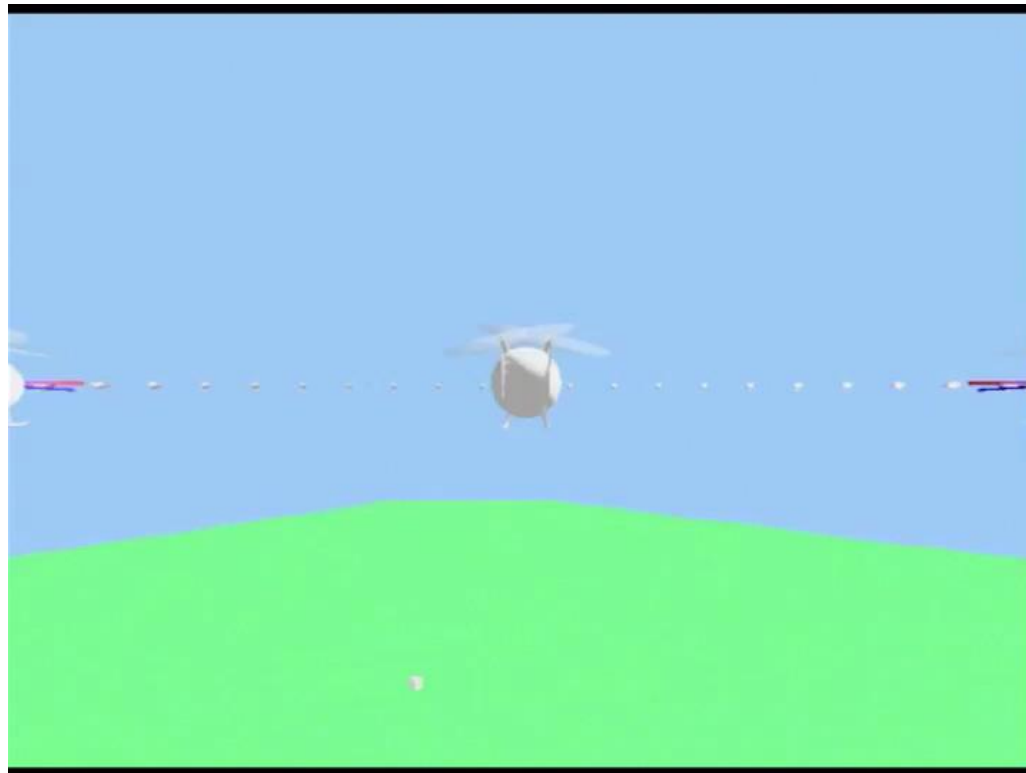- Can vary during a travel

lazy/scared user?   hurried user
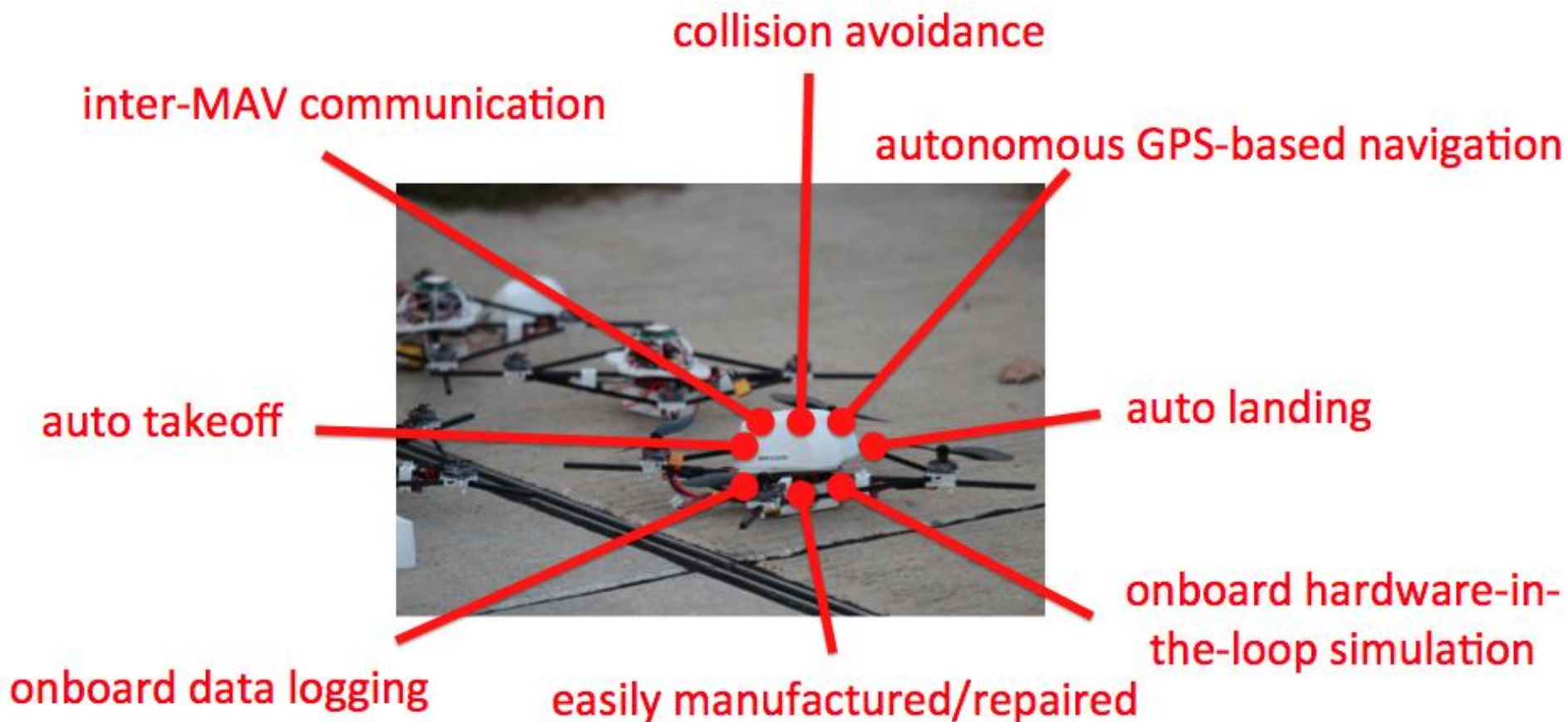
Challenging scenario – Circle scenario

Collision avoidance - Simulation

- Simulation

Collision avoidance - Under real-time constraints
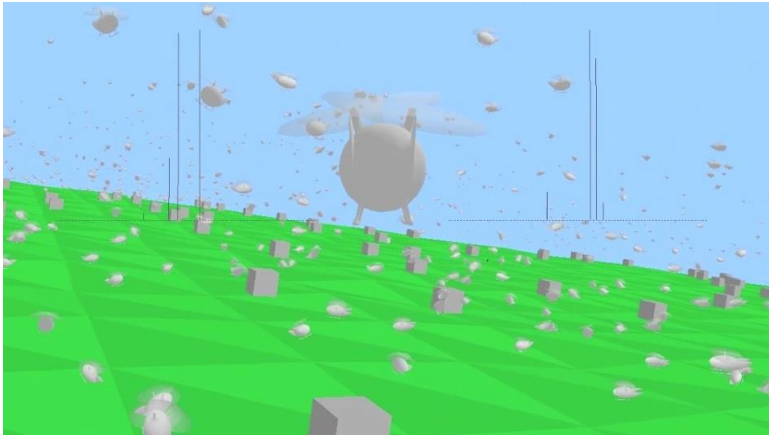
- Development of a flying MAV for multi-robots experiments

collision avoidance

inter-MAV communication

autonomous GPS-based navigation

auto takeoff

auto landing

onboard data logging

easily manufactured/repaired

onboard hardware-in-the-loop simulation

Collision avoidance

- Video

Conclusion

- Collision-free navigation

☑

☑

Questions ?

Demo this afternoon!