



Introduction: Exploring Formal Methods for Unmanned Aerial Vehicles

Workshop Day ABZ,
10.06.25

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- Bought Crazyflie drones - for research and teaching
- Advanced master's module - Formal Modeling and Verification of Drones
- Student's projects on different use cases of drones
- Conclusion:
 - Crazyflie drones - usable for teaching formal methods with real-world system
 - Potential for future research



- Unmanned aerial vehicles (UAV) used for logistics, transportation, infrastructure monitoring, disaster response, defense, and surveillance
- Accidents - threat to human lives, environment, financial costs
- Ensuring safety important for UAVs



- Formal modeling, validation and verification of robotic systems, multi-agent systems, and AI-driven system
 - agricultural robots
 - warehouse robots
 - space exploration robots
 - ...
- Real-world execution + runtime monitoring - through formal method tool
- Goal of workshop: explore future research directions

- Part 1: Tutorial: Real-World Execution of Drones with ProB
- Part 2: Invited Talks
- Final Discussion