

Aerial robotic operations

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Propositions

accompanying the dissertation

AERIAL ROBOTIC OPERATIONS: MULTI-ENVIRONMENT COOPERATIVE INSPECTION & CONSTRUCTION CRACK AUTONOMOUS REPAIR

by

Yiyong Gou

1. Designing the hardware and software for a customized aerial carrier equipped with an anchoring mechanism is challenging, especially due to design requirements concerning safety and reliability. [Chapter 3]
2. In-flight docking without any external position tracking is a crucial step for aerial robot cooperation if the operational situation does not facilitate aerial robot landing. [Chapter 4]
3. Cooperation in a heterogenous group of robots allows increasing their operational capabilities substantially. [Chapter 5]
4. Construction crack repair that employs an aerial system and a learning based crack segmentation method can achieve construction crack autonomous repair. [Chapter 6]
5. We should be aware of the fundamental trade-offs between capabilities, hardware, cost and energy while developing a robotic system.
6. Robots need to have the ability to move in the dark using their available functional sensors like a blind person.
7. Probably, even though robotics is currently in the stage of childhood or even infancy, one day it will grow up to be an adult.
8. Robotics meets post-disaster rescue, saving countless lives and property.
9. Pursuing a PhD allows me to learn about the world and myself.
10. Smash, intercept, retrieve, drop, defend and full strike at appropriate times are needed both in badminton and life.