

Safety Risk Assessment of Unmanned Aircraft System Operations for Urban Air Mobility

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Propositions

accompanying the dissertation

Safety Risk Assessment of Unmanned Aircraft System Operations for Urban Air Mobility

by

Chengpeng Jiang

1. Small UAS mainly pose safety risk to uninvolved persons on the ground, in contrast to manned aircraft which mainly pose safety risk to crews and passengers on-board.
“This proposition pertains to this dissertation.”
2. Commercial aviation regulations account for the cumulative effect of safety risk posed by annual flights to people living near large airports; this cumulative effect should also be considered for annual UAS flights over populated areas.
“This proposition pertains to this dissertation.”
3. A small UAS that satisfies EASA airworthiness requirement, poses similar safety risk to the overflown population compared to a commercial manned aircraft, if they fly the same route over an urban area.
“This proposition pertains to this dissertation.”
4. In contrast to conducting experimental tests, using dynamical simulation of Multi Body System (MBS) and Finite Element (FE) models for the assessment of ground third party risk posed by UAS, enables to explore a large number of scenarios.
“This proposition pertains to this dissertation.”
5. It is overly conservative to assume a 100% Probability of Fatality for a small UAS hitting on human body, as is common practice in current UAS regulations.
6. To improve social acceptance of commercial UAS operations, it is essential to communicate to the public how safety and privacy issues are addressed when allowing UAS to fly over their living area.
7. The joy of learning and creativity comes from linking unrelated ideas, this also applies to the enjoyment of a good joke.
8. Our perception and understanding of the world are influenced by the language we use to frame the world.
9. Innovative solution and insight tend to emerge when mind is not actively focused on the problem.
10. Defining a problem well can be harder than solving it.

These propositions are regarded as opposable and defensible, and have been approved as such by the promotor Prof.dr.ir. H.A.P. Blom and copromotor Dr. O.A. Sharpans'kykh