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Title	System Performance Specification and Verification of Sensing and Advisory Functions for Certifiable Autonomous Systems.
Abstract	<p>Within the air-system design process, as individual platforms and systems become more complex, and certainly with the introduction of autonomous behaviour into vehicles, the challenge to established perspectives on safety and reliability methods continuously grows. In order to be able to develop a capability to certify an autonomous machine for safe operation within a relatively unstructured and somewhat unpredictable environment it will become necessary to (re)consider the conditions and bounds upon the exploitation of innovations in machine intelligence, advice and decision making. In particular there is concern in the employment of non-deterministic, so called 'soft' artificial intelligence techniques in the implementation of system advisory functions supporting autonomous decision making. In the context of the issues relating to validation and verification of advisory and decision making functions within autonomous systems an as yet to be resolved issue is the association of acceptable loss rate to the bounding of the performance specification of the relevant advisory functions. To this end the proposed project will consider how certain autonomous decisions might be partitioned into two classes, along with the associated sensing and advisory cases. From this study, reliability models for representative advisory system designs within each of these two classes will then investigated.</p>