Trustworthy Autonomous Systems?

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Abstract:

Autonomy represents a step-change in systems development and requires new approaches to system architectures, to systems analysis, and to practical regulation. In this presentation, I will describe our approach that utilises the modularity and heterogeneity of (software) components to provide hybrid agent architectures.

This then allows for a rage of verification techniques to be utilised in the different components, from formal verification applied to the core autonomous decision-making through to varieties of testing used in other parts of the system. An important component is the use of runtime verification (or runtime monitoring) to check for anomalies and violations.

Together, these mechanisms provide a basis for more reliable, transparent, trustworthy and verifiable autonomous (often robotic) systems.