An Assurance Case Pattern to Argue Quantitative Safety Targets for AI Components Considering Their Complete Life-Cycle

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Using Complementary Risk Acceptance Criteria to Structure Assurance Cases for Safety-Critical AI Components

Integrating Quantitative Evidences of Design and Runtime Safety Measures to Argue Quantitative Safety Targets for AI Components

Example safety target requesting a confidence level of $\phi = 0.9999$ similarly to various applied to ensure that the probability of a safety violation by the DDC is less than $10^{-5}$.

Summary
We propose how to argue by means of a mathematical foundation that a DDC has achieved a given quantitative safety target. We integrate quantitative evidences from statistical testing, runtime monitoring, data quality assessment, and anticipated scope compliance.