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**From Requirements Validation to
Design Verification: How AI can enable
safe autonomous systems**

Abstract:

Nearly 80% of errors in projects are introduced at the early stages of development, from requirements authoring to systems design. These errors arise due to the inherent ambiguity of the natural languages used in the originating requirements as well as the increasing complexity of autonomous and interconnected systems, making exhaustive verification a growing challenge and increasing the cost and frequency of project overruns. In this presentation, I will discuss how QRA is addressing these early-stage challenges by applying AI technologies into tools that detect inconsistencies in textual requirements, as well as flaws and perfect-storm scenarios in system designs where they fail to meet their expected behavior. I will present case-studies where these tools are now providing system engineers in safety-critical industries with rapid, on-demand analysis and actionable review artifacts to help them build autonomous systems with confidence.

Biography:

David Wolfe is a Software Engineering Manager at QRA Corp in Halifax, Nova Scotia. At QRA, he is the project lead for QVtrace, an application used to rapidly query and verify engineering models for safety-critical systems such as those from the aerospace, automotive, and medical industries. David has a BS in Electrical Engineering from Cornell University and a PhD from University of California, Berkeley in Computer Science. His career has brought him from faculty member at UC Berkeley and Gustavus Adolphus College, to a term as a level five software engineer at Google in Zurich, Switzerland. As an academic, David has taught more than 25 different courses ranging from computer science to discrete mathematics and statistics. He has published three books and twenty refereed papers, and is currently an adjunct professor in the Department of Mathematics and Statistics at Dalhousie University in Halifax, Nova Scotia. When he's not wearing one of his technical hats, David is a strategy games enthusiast, and loves to create and solve puzzles.