

## Presentation Abstract

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| Presentation Title     | Monte Carlo Analysis for IV&V   |
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| Presentation Abstract  | <p>There are many kinds of problems for which an exact answer cannot be known. Monte Carlo methods were invented in the 50s as a way to estimate quantities of interest, as well as confidence in the estimates. Spacecraft developers use these methods to answer questions such as</p> <ul style="list-style-type: none"><li>· How confident can I be that a SUD will not fail (before a given elapsed time)?</li><li>· How close to the target point (position and velocity) can I be 99% confident a booster will deliver my S/C?</li><li>· How likely is a stable landing?</li><li>· Do I have enough bandwidth (and other network components) for the traffic I am likely to have (without delays longer than XX usec, no more than .0001 of the time)?</li></ul> <p>After some brief background in system analysis and statistics, I will explain why and how Monte Carlo methods help developers design spacecraft and how a SME can analyze a developer's Monte Carlo results. I will touch on how IV&amp;V users do Monte Carlo methods (with or without the ITC) to support mission assurance.</p> |