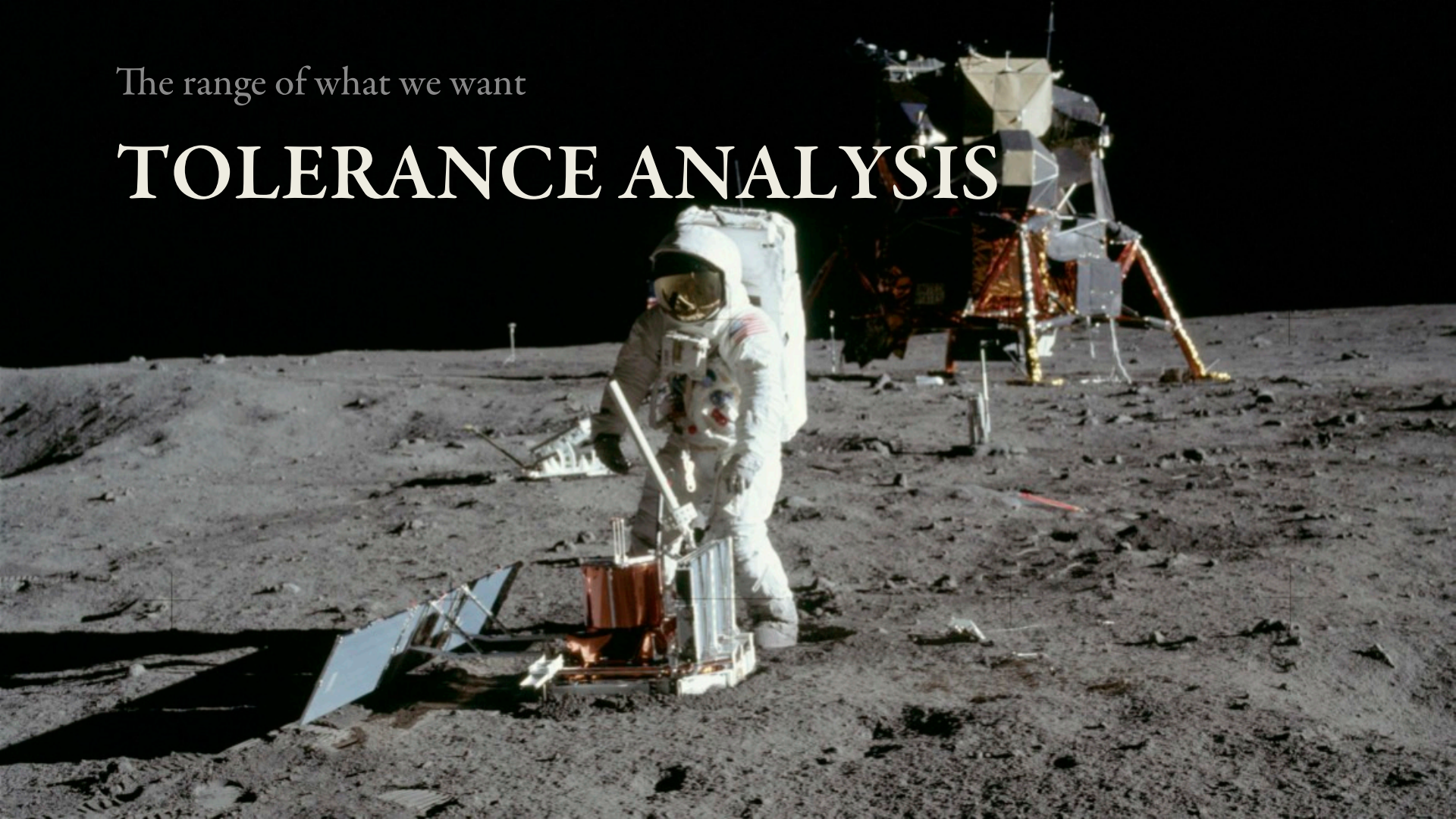
ASQ CRE Prep course

Lesson III. A. 6.

Tolerance and Worst-Case Analysis

The range of what we want

TOLERANCE ANALYSIS



Worst Case Method

Tally the stack up at maximums

Simple math

Only need range of variation

Root Sum Square Method

Use standard deviations to estimate combined stack up standard deviation

Able to estimate fall out or failures

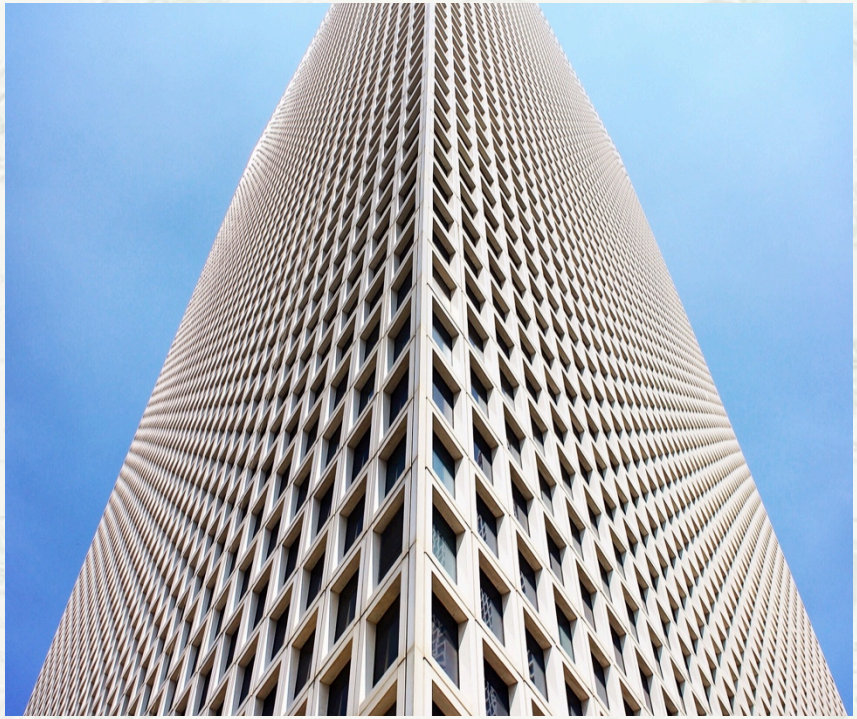
Assumes normal distribution

Extreme Value Method

Conservative approach

Random effects added rather than RMS

No need for statistical information



Monte Carlo Method

Simulation technique to estimate stack up standard deviation

Use estimates for distributions of each tolerance in the stack up.

Most accurate, assuming good data input

Are tolerances set with capability in mind?

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Design of Experiments