Full Factorial Design

What is full factorial design?

- An experimental method where all possible combinations of the levels of every factor are tested to study their effects on a response variable.

Why should we choose it?

- Covers the whole range of data points, with all possible combinations of *low*, *(mid)*, and *high* levels.
- Orthogonal data points. Effects easier to recognize.

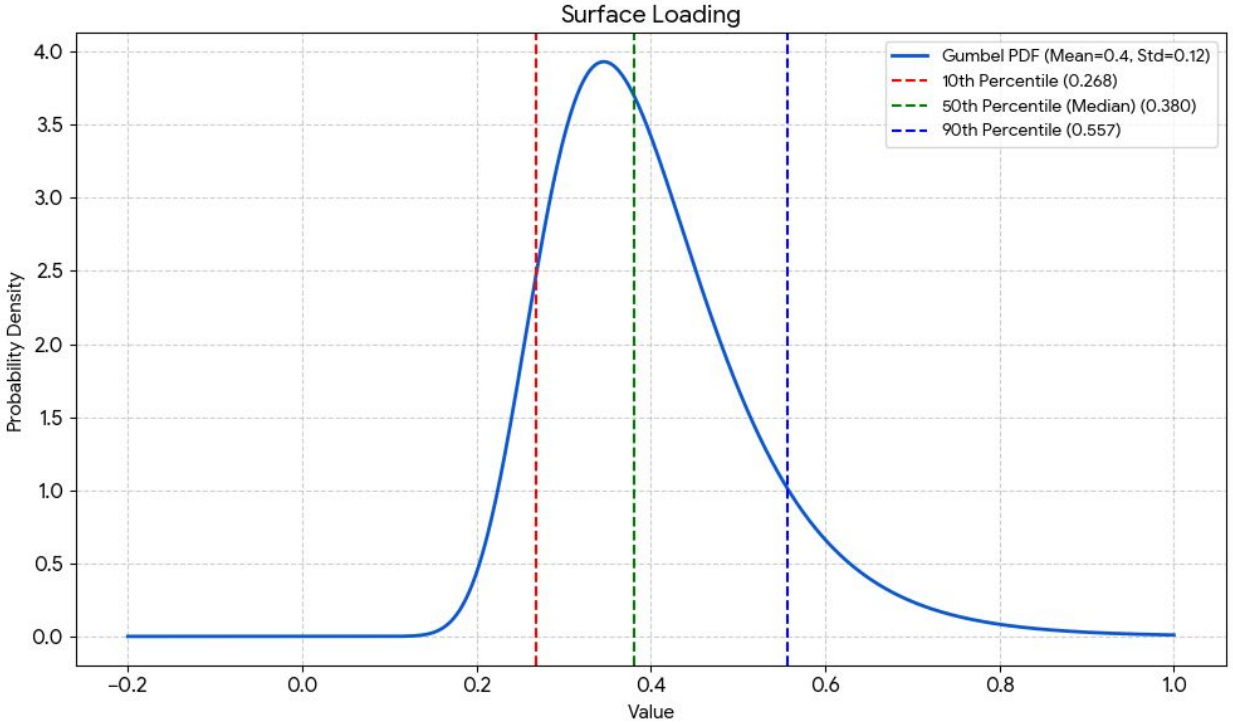
How to choose design levels?

→ **with Coefficient of Variation (CV) = sd/mean**

Factor	Distribution	CV
f_mem	Gumbel	0.30
σ_mem	Lognormal	0.20
E_mem	Lognormal	0.15
v_mem	Uniform	0.03
σ_edg	Lognormal	~0.20
σ_sup	Lognormal	~0.20

Runs: 3^2 * 2^4 = 144 runs < 200

What kind of data points should be selected for the parameters?



- Why not mean±SD instead of percentiles?
- 10th, 50th, and 90th percentiles
  =
  “low–mid–high” values