MOD300 Anvendt Python programmering og modellering

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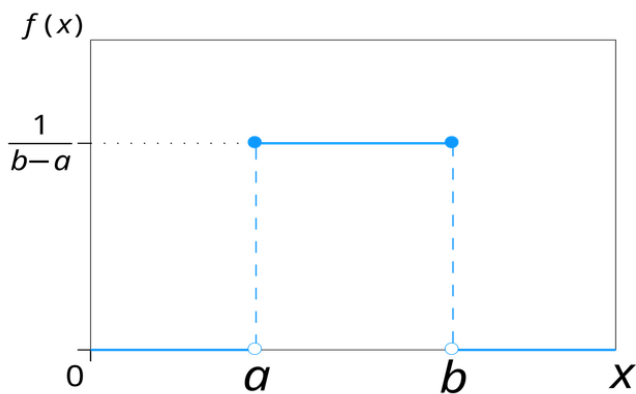06.10.2025

University
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Recaps

INFERENCE Probability distributions are a description of uncertainty (lack of knowledge).

DESCRIPTORS Probability distribution as description of a not-deterministic state (electrons moving).
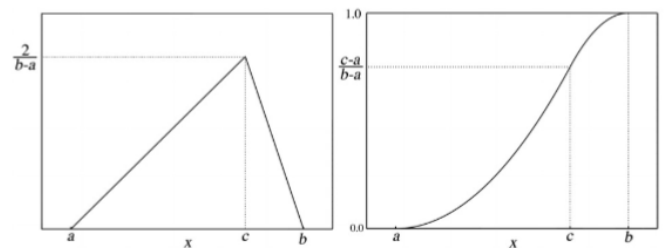
Uniform distribution function
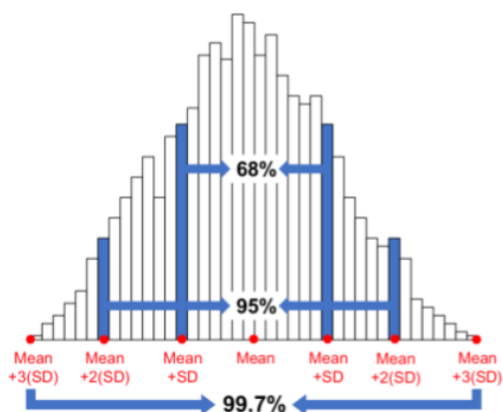
PDF: $f(x) =$

$\frac{1}{b-a}, a \leq x \leq b$

Triangular distribution function

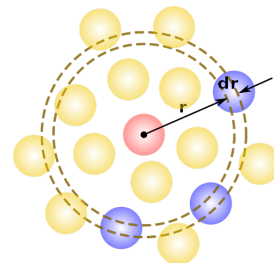Notation: $X \sim T(a, b, c)$

Normal Distribution

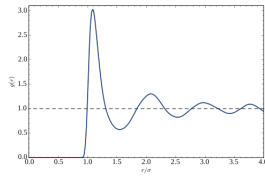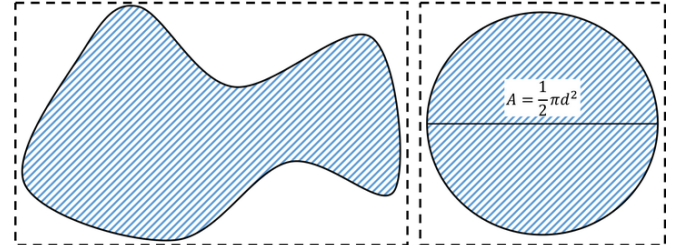Notation: $X \sim G(\mu, \sigma)$

Radal distribution function

$$g(r) = \frac{dn_r}{4\pi r^2 dr \rho}$$
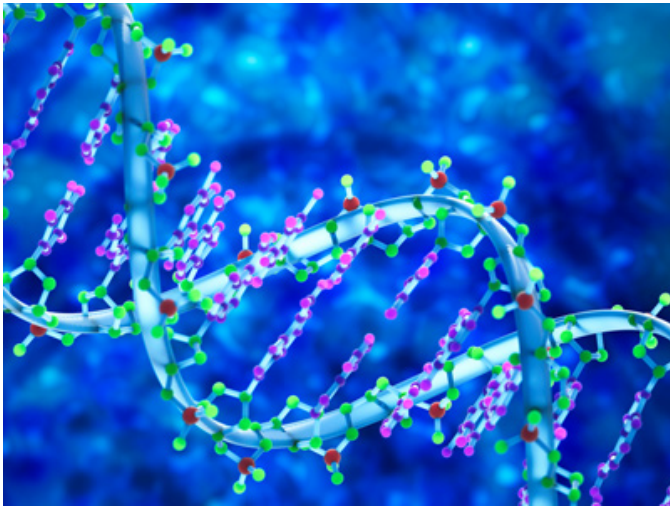
Radal distribution function

$$g(r) = \frac{dn_r}{4\pi r^2 dr \rho}$$

2D distributions
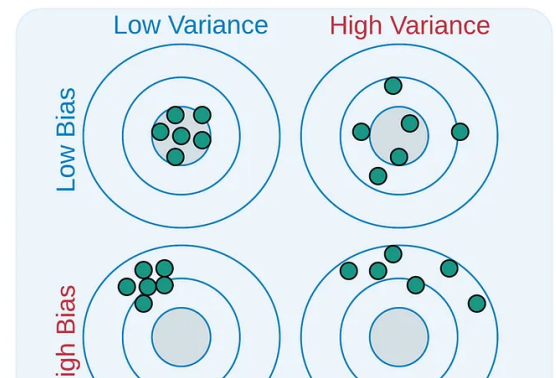

$$A = \frac{1}{2}\pi d^2$$

3D distributions

MC method

Monte Carlo Integration "Hit and Miss"

Try and then count.

Bias and Variance?

MC integration

$$\int_a^b f(x)dx = \frac{b-a}{4}\left[\quad + \quad + \quad + \quad \right]$$

$$\int_a^b f(x)dx = \quad + \quad + \quad + \quad$$

Random Numbers

HRNG: Hardware random number generator

PRNG: Pseudo Random number generator

Make your random number!