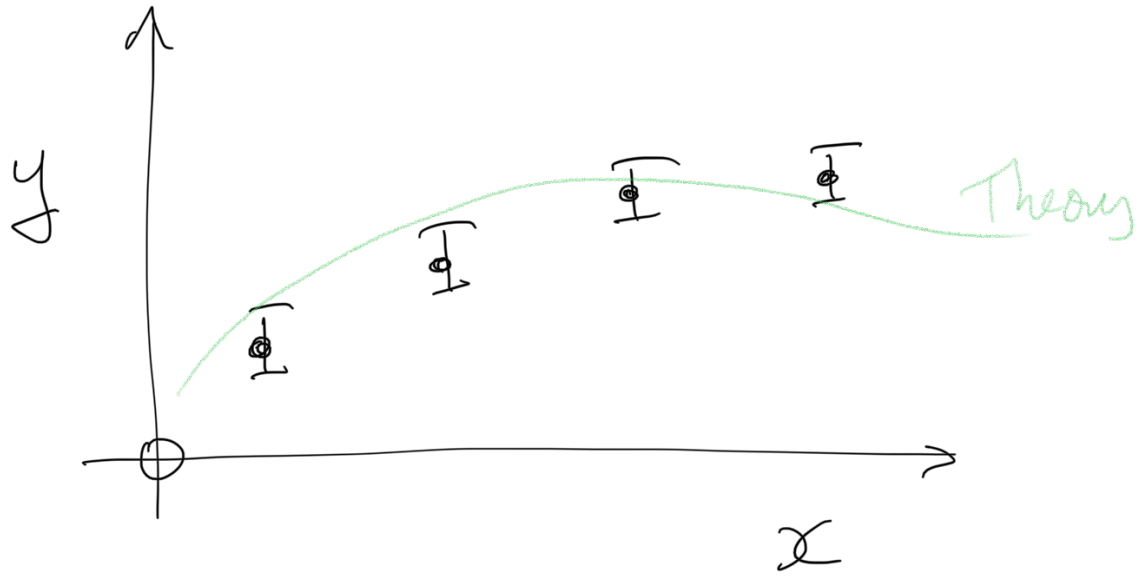
Lecture II - Physics 341

Experiments → collect data



→ numerical

↳ integer

↳ floating point

↳ floating point

↳ Scalars, Vectors

(m, T, ρ) $\vec{F}, \vec{v}, \vec{x}$

→ Surveys yes/no T/F boolean

"words" string

(int, float, boolean, string)

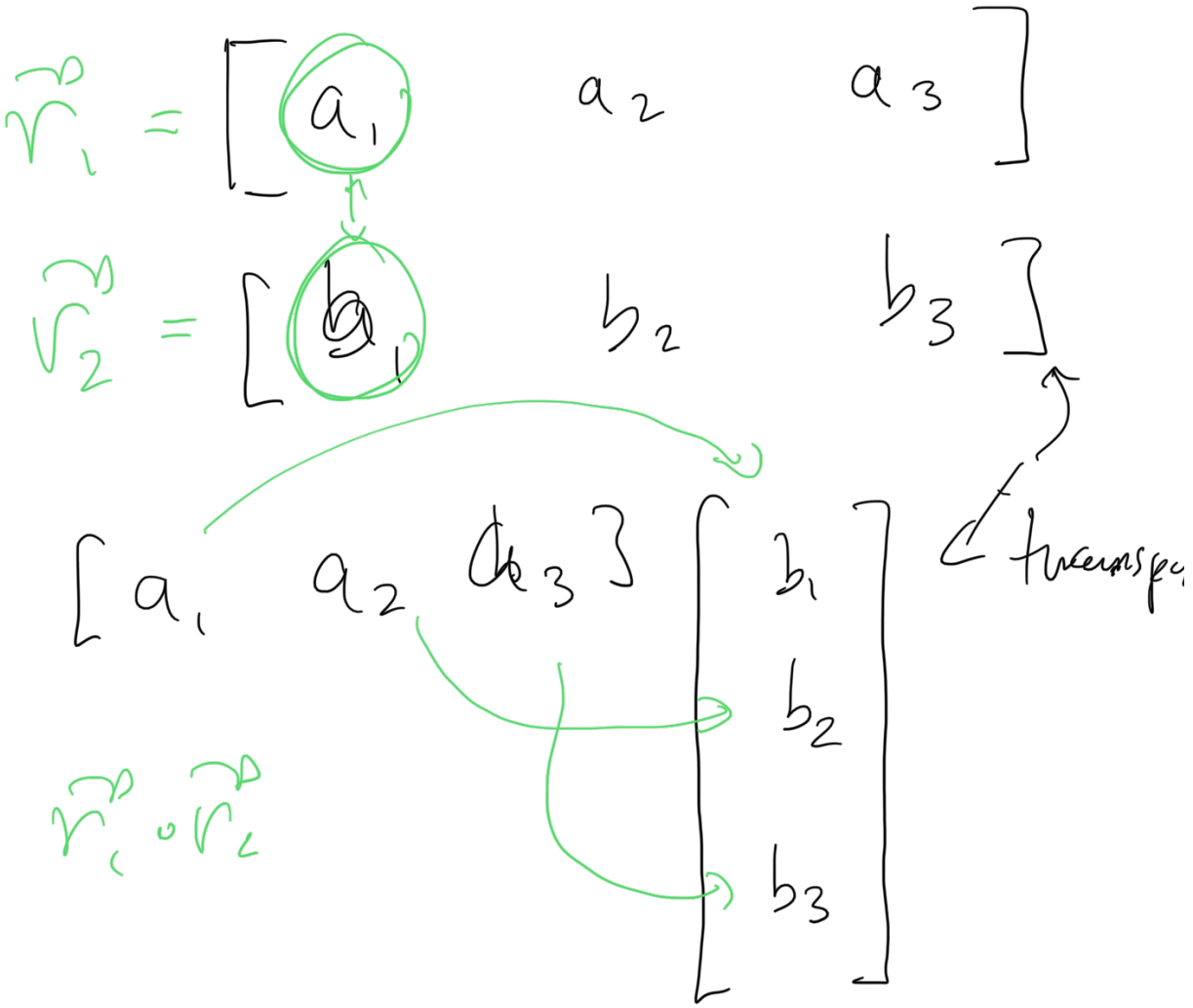
→ lots of data

→ data structure

→ array / matrix / vector

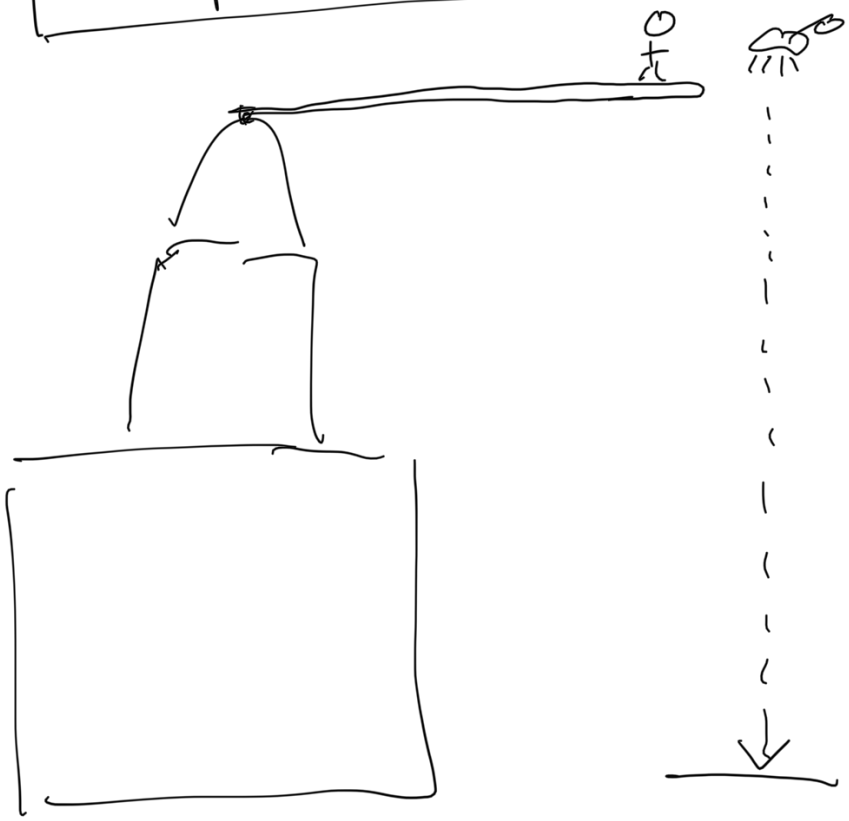
myList[0] = 'Paul'

Anaconda



$= a_1 b_1 + a_2 b_2 + a_3 b_3$

Experimental data



1000 times

time → t

distance → d

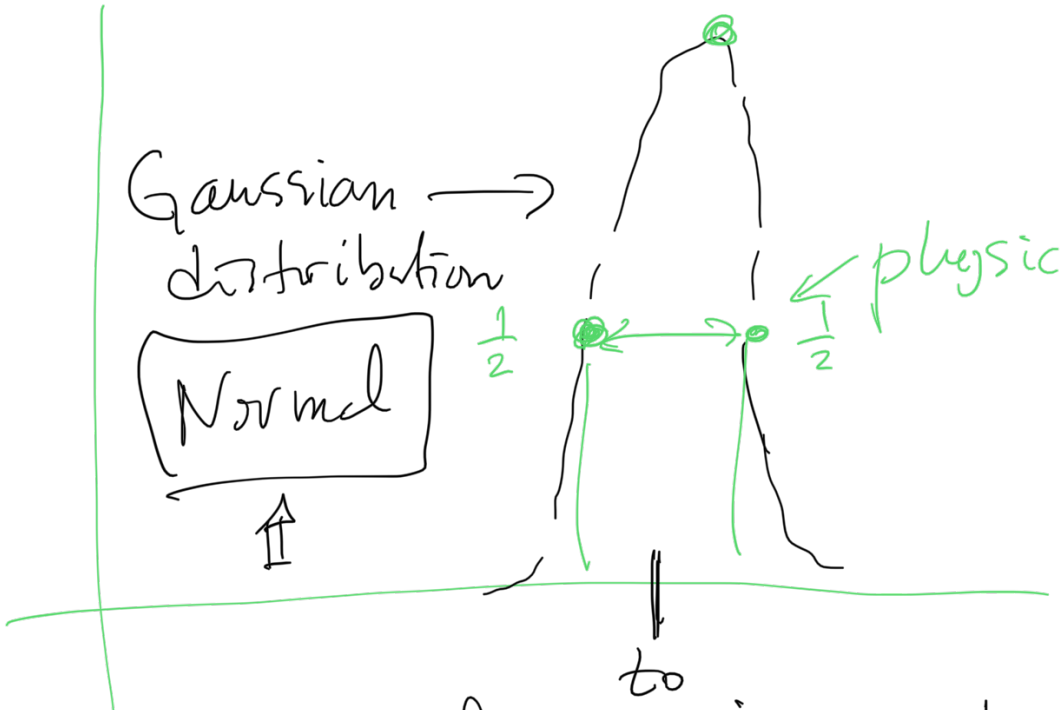
Theory

$$d = \frac{1}{2} g t^2$$

measure

$$g = \frac{2d}{t^2}$$

times



→ human incompetence

"Bell Curve" → wind effects

→ ? . . . .

$$-\frac{(t-t_0)^2}{2\sigma^2}$$

central value

$$\frac{1}{2} = \frac{1}{\sqrt{2\pi}\sigma} e$$

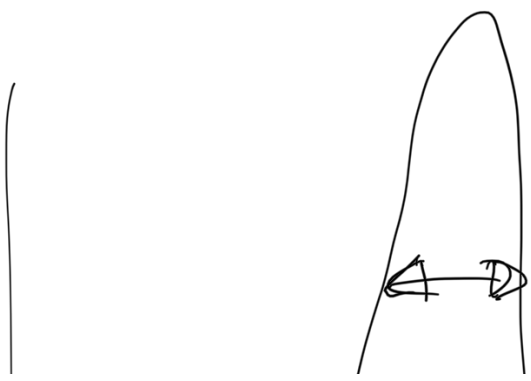
σ ↑ width

STATISTICS → assumes a normal distribution

Economics → stock prices

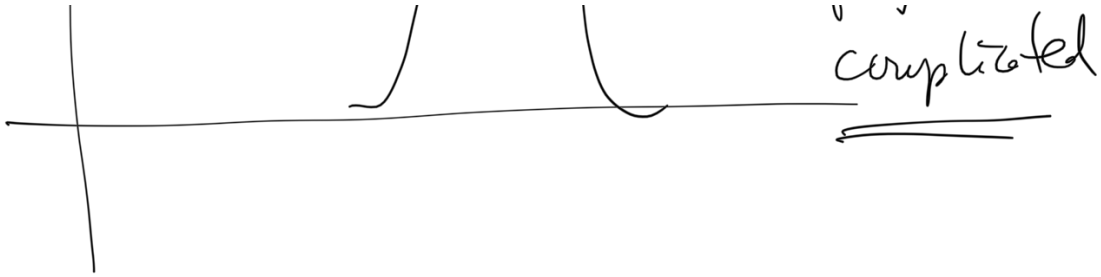
NOT NORMAL

FWHM = 2.35σ



statistical uncertainty

↑ physics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