Contribution ID: **7**   Type: **not specified**

Computation accuracy

Wednesday, March 27, 2024 9:00 AM (3h 30m)

When using numbers of type float or double, are you aware that 0.1+0.2 does not equal 0.3 ? Let's review the theory behind such pitfalls, and discuss some case studies :
- the quadratic equation in kinematics calculations
- variance calculations in data analysis
- calculations with complex numbers
- accurate summation in large Monte-Carlo calculations
- precision in matrix and geometry calculations (the interest of factoring)
- differential equations
Elements of numerical calculation
- solution of equations, minimisation
- scaling: combining accuracy and efficiency
Clean code for computation

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