Computing via Physics

Explore the fundamental ideas that contributed to the "digitisation" of physical theory, from the prescriptive insights of Newton to modern computational physics, with a nod to quantum computing.

Outline of Syllabus.

Parameterisation of Euclidean Geometry

Heliocentricity and Rational generalisation

Vector Calculus

Abstraction hierarchy: dynamics, impulse, force laws

Foundations of thermodynamics

N.-set theory

Automata hierarchy

Real machines: Post/Turing device, RAM, RASP

Information theory

Encoding, compression, entropy

Type theory

Tautology, Fallacy and evaluation of predicates

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