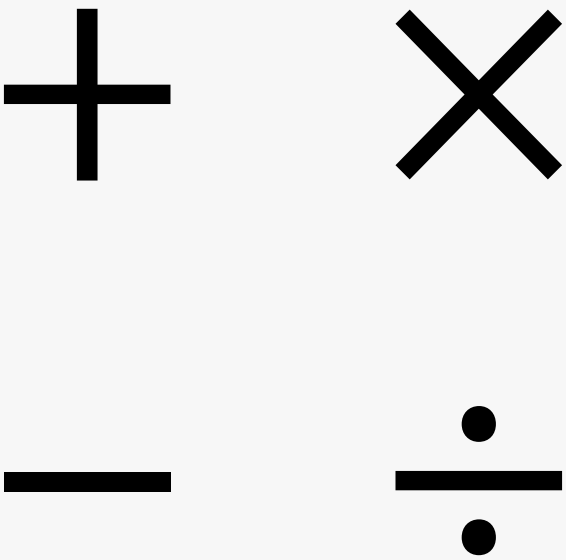
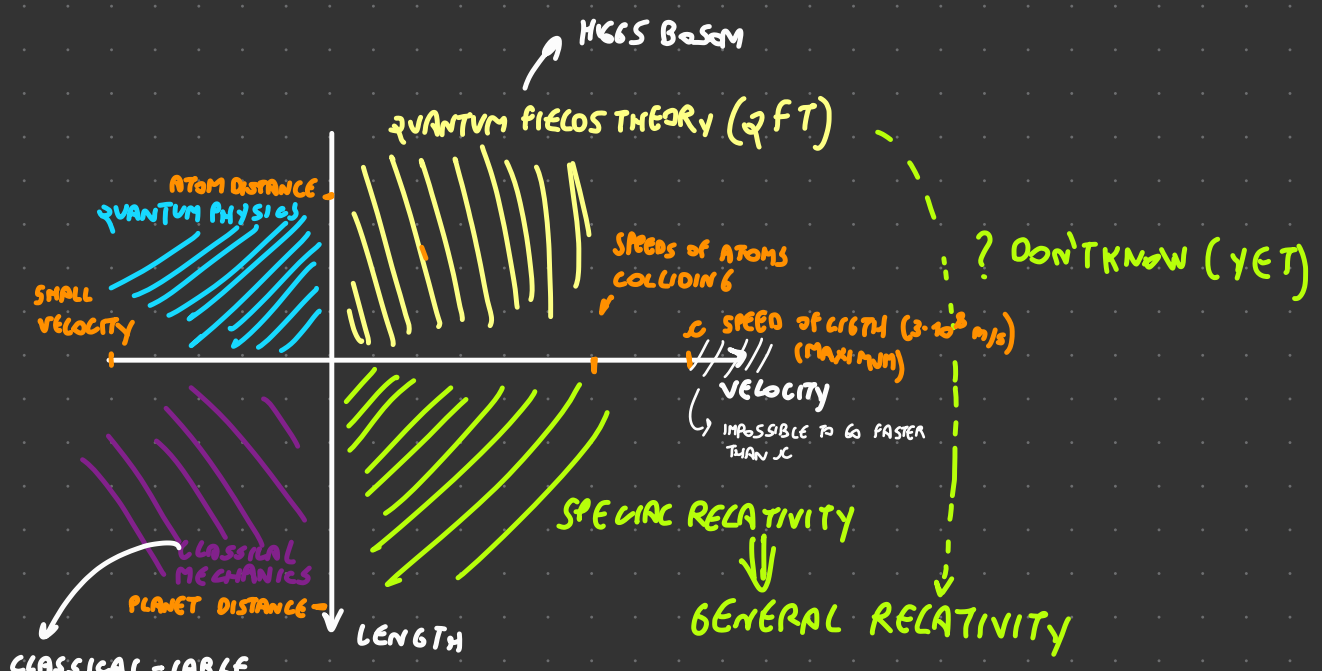


THEORETICAL & QUANTUM PHYSICS FOR AI 22/10/10

1. THEO. PHYSICS COMMON LANGUAGE FOR UNDERSTANDING EVERYTHING AROUND US (QUANTITATIVE DESCRIPTION)
   - ↳ BETWEEN MATHS AND ENGENEIRING
     - HARD SCIENCE W/OUT STRICT RUCES
2. STATISTICAL MECHANICS: GOOD FOR INTERDISCIPLINARY APPLICATION
   - ↳ LARGE NUMBER OF DEGREES OF FREEDOM (D.O.F.)
     - ↳ NUMBER OF THINGS THAT NEEDS TO BE SPECIFIED. IF I HAVE A DOT I NEED 3D COORDINATES
3. TECNICAL REASON: TO TACKLE FONDAMENTAL QUESTION
   - INFORMATION HAS ITS ROOTS IN ENTROPY
   - OPTIMIZATION IS A FONDAMENTAL PRINCIPLE OF PHYSICS
   - STATISTICAL MECHANICS (STAT. MECH.) OF DISORDERED SYSTEM → NEURAL NETWORKS
     - ↓ GIORGIO PARISI
4. SCIENTIFIC METHOD: UNIVERSALLY APPLICABLE
   - DESIGN EXPERIMENTS → COLLECT DATA → LOOK FOR ABSTRACTION
     - ↳ FROM DATA WE TRY TO FORMULATE GENERAL PRINCIPLES (LAWS) → AND THEN I CAN MAKE PREDICTIONS
   - APPLE FALLING IS F=ma. ALSO WORKS FOR PLANETS?
5. "UNDERSTENDING DEEP LEARNING IS ALSO A JOB FOR PHYSICIST" - LENKA ZOE BOROVÁ



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1. DIMENSIONAL ANALYSIS - SCALING ARGUMENTS
2. DYNAMICAL SYSTEMS (CHAOS)
3. OPTIMIZATION AND VARIATIONAL PRINCIPLES
4. LAGRANGE AND HAMILTONIAL MECHANICS
5. THERMODYNAMICS
6. STATISTICAL MECHANICS