

Theory of Computation

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1 Why TOC?

- It helps us to understand the limits of what computer can do and how to model computation using mathematics

Q1: What is the motivation for studying theory behind computation? OR Needs of TOC?

A:

- Understanding the capability of a computer
- To find steps to solve a problem
- Increase efficiency while doing a task

Q2: List the problems that cannot be solved by a computer.

A:

1. Ethical problems. Eg: Self-driving car deciding to save the driver/passenger or the pedestrian
2. Generating truly original art of emotion

Automaton (pl.: Automata)

A simplified mathematical model of a machine (digital computer). It

- Accepts input
- Produces output
- May have some temporary storage
- can make decisions in transforming the input into the output