

Cryptography: is the practice and study of techniques for [secure communication](#) in the presence of third parties called [adversaries](#).

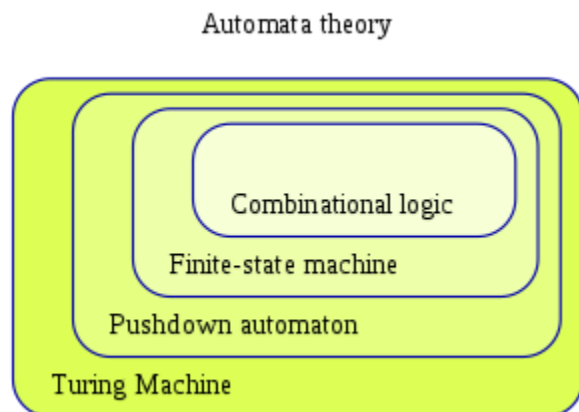
Graph theory: **graph theory** is the study of [graphs](#), which are mathematical structures used to model pairwise relations between objects. A graph in this context is made up of [vertices](#), [nodes](#), or [points](#) which are connected by [edges](#), [arcs](#), or [lines](#)

Logic: fundamental role in computer science. Some of the key areas of logic that are particularly significant are [computability theory](#) (formerly called recursion theory), [modal logic](#) and [category theory](#). The [theory of computation](#) is based on concepts defined by logicians and mathematicians such as [Alonzo Church](#) and [Alan Turing](#).^{[1][2]}

Computability: fundamental concepts, ideas, and models of the theory of computation are discussed. Topics included: introduction to automata and languages, introduction to compatibility theory, introduction to complexity theory

Attribute grammar: a formal way to define [attributes](#) for the productions of a [formal grammar](#), associating these attributes with values. The evaluation occurs in the nodes of the [abstract syntax tree](#), when the language is processed by some [parser](#) or [compiler](#).

Automata theory: the study of [abstract machines](#) and [automata](#), as well as the [computational problems](#) that can be solved using them. It is a theory in [theoretical computer science](#) and [discrete mathematics](#) (a subject of study in both [mathematics](#) and [computer science](#)). The word *automata* (the plural of *automaton*) comes from the Greek word αὐτόματα, which means "self-acting".



Data mining: the practice of examining large databases in order to generate new information.

AI: also **machine intelligence**, **MI**) is [intelligence](#) demonstrated by [machines](#), in contrast to the **natural intelligence** (**NI**) displayed by humans and other animals. In [computer science](#) AI research is defined as the study of "[intelligent agents](#)": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals.^[1]

Robotics: the branch of technology that deals with the design, construction, operation, and application of robots.

Computer vision: an [interdisciplinary field](#) that deals with how computers can be made for gaining high-level understanding from [digital images](#) or [videos](#). From the perspective of [engineering](#), it seeks to automate tasks that the [human visual system](#) can do.^{[1][2][3]}

Computer vision tasks include methods for [acquiring](#), [processing](#), [analyzing](#) and understanding digital images, and extraction of [high-dimensional](#) data from the real world in order to produce numerical or symbolic information, e.g., in the forms of decisions.^{[4][5][6][7]}

Image processing: **Digital image processing** is the use of computer [algorithms](#) to perform [image processing](#) on [digital images](#). As a subcategory or field of [digital signal processing](#), digital image processing has many advantages over [analog image processing](#). It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and signal distortion during processing. Since images are defined over two dimensions (perhaps more) digital image processing may be modeled in the form of [multidimensional systems](#).