Computer Science

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Contents

Chapter 1

Wikipedia's

1.1 Wikipedia/Computer Science

Fundamental areas of computer science. Programming language theory, Computational complexity theory, Artificial intelligence, Computer architecture. History, Outline, Glossary, Category.

Computer science is the study of computation, automation, & information. Computer science spans theoretical disciplines (such as algorithms, theory of computation, & information theory) to practical disciplines (including the design & implementation of hardware & software). Computer science is generally considered an area of academic research & distinct from computer programming.

Algorithms & data structures are central to computer science. The theory of computation concerns abstract models of computation & general classes of problems that can be solved using them. The fields of cryptography & computer security involve studying the means for secure communication & for preventing security vulnerabilities. Computer graphics & computational geometry address the generation of images. Programming language theory considers approaches to the description of computational processes, & database theory concerns the management of repositories of data. Human–computer interaction investigates the interfaces through which humans & computers interact, & software engineering focuses on the design & principles behind developing software. Areas such as operating systems, networks & embedded systems investigate the principles & design behind complex systems. Computer architecture describes the construction of computer components & computer-operated equipment. Artificial intelligence & machine learning aim to synthesize goal-orientated processes such as problem-solving, decision-making, environmental adaptation, planning & learning found in humans & animals. Within artificial intelligence, computer vision aims to understand & process image & video data, while natural-language processing aims to understand & process textual & linguistic data.

The fundamental concern of computer science is determining what can & cannot be automated. The Turning Award is generally recognized as the highest distinction in computer science." – Wikipedia/computer science

1.1.1 History

1.1.2 Etymology

1.1.3 Philosophy

Epistemology of computer science

Paradigms of computer science

1.1.4 Fields

Theoretical computer science

Theory of computation.

Information & coding theory.

Data structures & algorithms.

Programming language theory & formal methods.

Computer systems & computational processes

Artificial intelligence.

Computer architecture & organization.

Concurrent, parallel & distributed computing.

Computer networks.

Computer security & cryptography.

Databases & data mining.

Computer graphics & visualization.

Image & sound processing.

Applied computer science

Computational science, finance & engineering.

Social computing & human–computer interaction.

Software engineering.

1.1.5 Discoveries

1.1.6 Programming paradigms

1.1.7 Academia

1.1.8 Education

Chapter 2

The Art of Computer Programming

Bibliography