

Passport of the field of science “Computer Science”

Formula of the field:

The field of science "Computer Science" combines a range of research areas related to the problems solved by computers. The following research areas are within the scope of the Computer Science field of science:

- Data Analysis
- Theoretical Computer Science
- System Programming
- Artificial Intelligence

Research fields:

1. Data Analysis

Machine learning (including deep learning)

Computer vision

Analysis and recognition of images and videos

Analysis and recognition of signals (including speech and time series)

Visualization in data analysis (including computer graphics and virtual reality)

Automatic word processing

Methods of data analysis in natural sciences

Bioinformatics

Analysis of formal concepts

Modeling and analysis of information systems behavior based on the history of events

2. Theoretical Computer Science

Algorithms and data structures (including string algorithms, graph algorithms)

Theory of algorithms

Computational complexity

Complexity of Boolean circuits

Communication complexity

Kolmogorov complexity

Theory of finite automata, theory of Petri nets

Methods of programs formal verification

Theory of formal languages

Combinatorial and continuous optimization
Theoretical foundations of machine learning
Formal models of parallel and distributed computing and systems
Computability theory
Proof complexity

3. System Programming

Theoretical, architectural, model, language and implementation aspects of data management
Software verification and validation technologies
Compiler technology
Static and dynamic analysis of programs
Parallel and distributed computing technologies
Software system life cycle support tools
Operating systems and software platforms for the development and operation of software systems
Technologies and tools to support the design, analysis and verification of software and hardware systems models

4. Artificial Intelligence

Semantic technology
Representation and processing of knowledge
Applied logic, artificial intelligence logic