|  | *Софийски университет „Св. Климент Охридски“ Факултет по математика и информатика* |  |
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Полезни източници

*курс Структури от данни и програмиране*

*за специалност Информатика*

*зимен семестър 2022/23 г.*

## **Книги (на английски)**

Cormen, T., Leiserson, C., Rivest, R., Stein, C. (2009) **Introduction to Algorithms**, 3rd ed. MIT Press. ISBN 978-0-262-03384-8

Sedgewick, R. (1998) **Algorithms in C++, Parts 1-4: Fundamentals, Data Structure, Sorting, Searching**, 3rd ed. Addison-Wesley

Sedgewick, R. (2001) **Algorithms in C++ Part 5: Graph Algorithms**, 3rd ed. Addison-Wesley.

Sedgewick, R.; Wayne, K (2011) **Algorithms**, 4th edition. Addison-Wesley. <https://algs4.cs.princeton.edu/home/>

Skiena, Steven (2008) **The Algorithm Design Manual**, 2nd ed.

Weiss, Mark Allen (2014) **Data Structures and Algorithm Analysis in C++**. ISBN 978-0-13-284737-7

Antti Laaksonen (2018) **Competitive Programmer’s Handbook**. <http://cses.fi/book/index.html>

Knuth, Donald (1997) **The Art of Computer Programming**, 3 ed., vol. 1: Fundamental Algorithms. Addison-Wesley.

Knuth, Donald (1997) **The Art of Computer programming**, 3 ed., vol. 2: Seminumerical Algorithms. Addison-Wesley.

Knuth, Donald (1998) **The Art of Computer programming**, 2 ed., vol. 3: Sorting and Searching. Addison-Wesley.

Knuth, Donald (2011) **The Art of Computer Programming, Vol. 4A: Combinatorial Algorithms, Part 1**. Addison-Wesley.

Morin, Pat. **Open Data Structures (in C++)**. <http://opendatastructures.org/ods-cpp/>

Mount, David (1998) **CMSC 251: Algorithms - Lecture Notes**. <http://www.cs.umd.edu/~meesh/351/mount/251lects.ps>

## **Книги (на български)**

Седжуик, Р. (2003) **Алгоритми на C**.

Наков, Преслав; Добриков, Панайот (2003) **Програмиране = ++Алгоритми**. ISBN 954-8905-06-X

Амерал, Лендерт (2001) **Алгоритми и структури от данни в С++**. ISBN 954-8495-25-2

## **Комбинаторни алгоритми**

[Next lexicographical permutation algorithm](https://www.nayuki.io/page/next-lexicographical-permutation-algorithm) | Project Nayuki

[Why does Heap’s algorithm work?](http://ruslanledesma.com/2016/06/17/why-does-heap-work.html) | Ruslan writes code

## **Сортировки**

[Extra, Extra - Read All About It: Nearly All Binary Searches and Mergesorts are Broken](https://research.googleblog.com/2006/06/extra-extra-read-all-about-it-nearly.html%7C) | Joshua Bloch (2006)

[In-Place Merge Sort Demystified](https://xinok.wordpress.com/2014/08/17/in-place-merge-sort-demystified-2/) | Xinok (2014)

[Introsort](https://en.wikipedia.org/wiki/Introsort) | Wikipedia

## **Графи**

[Amit’s A\* Pages](http://theory.stanford.edu/~amitp/GameProgramming/) | Amit Patel

[Introduction to the A\* Algorithm](https://www.redblobgames.com/pathfinding/a-star/introduction.html) | Amit Patel (2016)

## **Други теми**

[Locality](https://www.youtube.com/watch?v=kcdaiPb7vaY) | YouTube

[Data Locality](http://gameprogrammingpatterns.com/data-locality.html) | Bob Nystrom

## **CMake**

[CMake Tutorial](https://cmake.org/cmake/help/latest/guide/tutorial/index.html) | CMake Documentation

Radovan Bast, Roberto Di Remigio (2018). CMake Cookbook: Building, testing, and packaging modular software with modern CMake. *The recipes are available at the book’s* [*GitHub repository*](https://github.com/dev-cafe/cmake-cookbook).

## **Software Engineering**

Robert C. Martin (2008) **Clean Code: A Handbook of Agile Software Craftsmanship**.

Robert C. Martin (2019) **Clean Agile: Back to Basics**.

## **Стандарти**

SEI CERT Oracle Coding Standard for Java. <https://wiki.sei.cmu.edu/confluence/display/java/SEI+CERT+Oracle+Coding+Standard+for+Java>

CppCoreGuidelines | Bjarne Stroustrup & Herb Sutter | <https://isocpp.github.io/CppCoreGuidelines/CppCoreGuidelines>

## **Таблици, визуализации, cheat sheets и т.н.**

Big-O Algorithm Complexity Cheat Sheet. <http://bigocheatsheet.com/>

Data Structures and Algorithms (обяснения и визуализация). <https://safe-brushlands-32530.herokuapp.com/>

Comparison Sorting Algorithms. <https://www.cs.usfca.edu/~galles/visualization/ComparisonSort.html>

Sorting Algorithm Animations. <http://www.sorting-algorithms.com/>

## **Сайтове със задачи и предизвикателства**

<https://arena.maycamp.com/>

<https://projecteuler.net/>

<http://judge.openfmi.net>

<http://train.usaco.org/usacogate>

<http://acm.timus.ru/>

<http://rosalind.info/problems/locations/>

<https://www.codewars.com>

<https://codility.com>

<http://codeforces.com>

<https://github.com/karan/Projects>

<http://1001zadachi.com/%D0%B7%D0%B0%D0%B4%D0%B0%D1%87%D0%B8-%D1%82%D0%B5%D1%81%D1%82%D0%BE%D0%B2%D0%B5-%D0%BE%D0%BB%D0%B8%D0%BC%D0%BF%D0%B8%D0%B0%D0%B4%D0%B8-%D0%B8%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%82%D0%B8%D0%BA%D0%B0.html>

<http://adventofcode.com/day/1>

<http://leetcode.com>

<http://topcoder.com>

<http://codechef.com>

<http://interviewbit.com>

<http://hackerrank.com>