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Once upon an algorithm. How stories explain computing. (English) Zbl 1511.00001

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This is an introduction to computer science. The relevant concepts are introduced using analogies with an ordinary working day and with fiction stories. Finding the way back home by dropping stones in the *Hansel and Gretel* fairy tail is the algorithm in the opening section; *Sherlock Holmes* uses data structures in the *Hound of Baskerville* just like *Indiana Jones* does during his adventures. Recursion and loops are illustrated with the movies *Groundhog Day* and *Back to the future*; and types and abstraction are illustrated by *Harry Potter* stories.

The title and the previous enumeration may suggest a superficial introduction, but the discussion is rather in-depth with a tedious discussion of almost philosophical nature about what an algorithm is; the difference between its execution and computation; the meaning of a language and abstraction; etc.

Low level implementation details are avoided but still some (rather advanced) concepts are introduced although in a less technical way: different sorting algorithms, complexity and the P = NP problem, program verification, elements of logic programming, type checking, etc.

Much attention goes to outlining the analogies between the technical computer science concepts and our organic intuitive life of every day. This is unlike a classical well-structured set of lecture notes that sometimes give a dull and overly technical outline. To recover the coherent structure of such lecture notes, it is explained in the introduction how the different chapters link together, many cross references are given within the chapters, and an appendix contains glossaries of technical terms.

Reviewer: Adhemar Bultheel (Leuven)

MSC:

00-01 Introductory exposition (textbooks, tutorial papers, etc.) pertaining to mathematics in general
68-01 Introductory exposition (textbooks, tutorial papers, etc.) pertaining to computer science
97P10 Comprehensive works on computer science (educational aspects)

Keywords:

algorithm; data structure; data type; loop, recursion; computer language; sorting

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