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Introduction to compiler design. 2nd revised edition. (English) [Zbl 1401.68003]

Publisher’s description: The second edition of this textbook has been fully revised and adds material about loop optimisation, function call optimisation and dataflow analysis. It presents techniques for making realistic compilers for simple programming languages, using techniques that are close to those used in “real” compilers, albeit in places slightly simplified for presentation purposes. All phases required for translating a high-level language to symbolic machine language are covered, including lexing, parsing, type checking, intermediate-code generation, machine-code generation, register allocation and optimisation, interpretation is covered briefly.

Aiming to be neutral with respect to implementation languages, algorithms are presented in pseudo-code rather than in any specific programming language, but suggestions are in many cases given for how these can be realised in different language flavours.

Introduction to Compiler Design is intended for an introductory course in compiler design, suitable for both undergraduate and graduate courses depending on which chapters are used.

MSC:
68-01 Introductory exposition (textbooks, tutorial papers, etc.) pertaining to computer science
68N20 Theory of compilers and interpreters

Keywords:
compiler design; data-flow analysis; code generation; function call optimisation; loop optimisation

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