



Jan A Bergstra, Cornelis A. Middelburg

# Instruction Sequences for Computer Science

Series: Atlantis Studies in Computing

- Contains a complete and self-contained theory about imperative programs based on very elementary principles
- Presents the first theory of instruction sequences, a forgotten basic concept of computer science
- Provides a new perspective on non-uniform computational complexity
- Provides a new perspective on the halting problem

This book demonstrates that the concept of an instruction sequence offers a novel and useful viewpoint on issues relating to diverse subjects in computer science. Selected issues relating to well-known subjects from the theory of computation and the area of computer architecture are rigorously investigated in this book thinking in terms of instruction sequences. The subjects from the theory of computation, to wit the halting problem and non-uniform computational complexity, are usually investigated thinking in terms of a common model of computation such as Turing machines and Boolean circuits. The subjects from the area of computer architecture, to wit instruction sequence performance, instruction set architectures and remote instruction processing, are usually not investigated in a rigorous way at all.

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