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Nota di contenuto	Title Page; Contents; Chapter 1. Main Principles of Program Specialization; 1.1. Specialized program; 1.1.1. Program specialization; 1.1.2. Context of specialization; 1.1.3. Specialization of a fragment of program; 1.1.4. Partial computations; 1.1.5. Range of specializations; 1.1.6. Equivalence between the specialized program and the generic program; 1.2. Specializing to improve performance; 1.2.1. Execution time; 1.2.2. Memory space; 1.2.3. Effect of the compiler; 1.2.4. Opacity of the code generated; 1.2.5. Effect of the memory cache; 1.3. Automatic specialization; 1.3.1. Specializer 1.3.2. Operation of specialization1.3.3. Execution times; 1.3.4. Advantages and disadvantages to automatic specialization; 1.4. Main applications of specialization; 1.4.1. Application 1: compiling using an interpreter; 1.4.2. Application 2: transforming an interpreter into a compiler; 1.4.3. Application 3: creating a compiler generator; 1.5. Specialization times; 1.5.1. Compile-time specialization; 1.5.2. Runtime specialization; 1.5.3. Specialization server; 1.5.4. Specialized code cache; 1.6. Financial viability of specialization; 1.6.1. Specialization

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Sommario/riassunto

This book presents the principles and techniques of program specialization - a general method to make programs faster (and possibly smaller) when some inputs can be known in advance. As an illustration, it describes the architecture of Tempo, an offline program specializer for C that can also specialize code at runtime, and provides figures for concrete applications in various domains. Technical details address issues related to program analysis precision, value reification, incomplete program specialization, strategies to exploit specialized program, incremental specialization, and data speci