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Stepwise Refinement of Distributed Systems

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The stepwise refinement method postulates a system construction route that starts with a high-level specification, goes through a number of provably correct development steps, and ends with an executable program. The contributions to this volume survey the state of the art in this extremely active research area. The world's leading specialists in concurrent program specification, verification, and the theory of their refinement present latest research results and surveys of the fields. State-based, algebraic, temporal logic oriented and category theory oriented approaches are presented. Special attention is paid to the relationship between compositionality and refinement for distributed programs. Surveys are given of results on refinement in partial-order based approaches to concurrency. A unified treatment is given of the assumption/commitment paradigm in compositional concurrent program specification and verification, and the extension of these to liveness properties. Latest results are presented on specifying and proving concurrent data bases correct, and deriving network protocols from their specifications.

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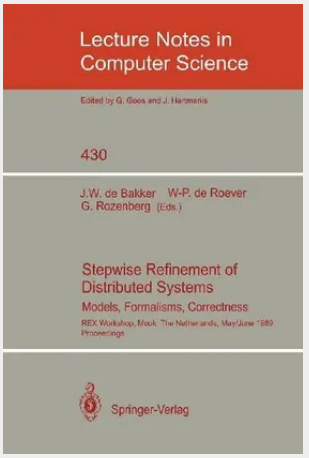

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