Programming from Specifications and Formal Methods

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2024-05-17

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1.1 Intro

- Program Construction and Verification. Backhouse
- Systematic Programming. Wirth
- A Method of Programming. Feijen, Dijkstra
- Predicate Calculus and Program Semantics. Dijkstra, Scholten
- Structured Programming. Dahl, Dijkstra, Hoare
- A Discipline of Programming. Dijkstra
- Program Derivation - Development of Programs from Specifications. Dromey
- Programming in the 1990s - An Introduction to Calculation of Programs. Cohen
- Programming - the Derivation of Algorithms. Kaldewaij
- Programming from Specifications. Morgan
- Algorithmic Problem Solving. Backhouse
- Program Construction - Calculating Implementations from Specifications. Backhouse
- Specifying Software - A Hands-on Approach. Tennent
- Induction, Recursion, and Programming. Wand
- Reasoned Programming. Broda
- Equations, Models, and Programs - a Mathematical Introduction to Computer Science. Myers.
- Guarded Command Language - A Short Description. Power
- Program Proofs. Rustan, Leino
- Effective Theories in Programming Practice. Misra
- Small Programming Exercises. Rem

1.2

- Mathematical Theory of Program Correctness. de Bakker
- Refinement Calculus - A Systematic Approach. Back, von Wright
- The B-Book - Assigning Programs to Meanings. Abrial

1.3 Formal Methods in SE

- Specification and Transformation of Programs - A Formal Approach to Software Development. Partsch
- Formal Software Development - From VDM to Java. Charatan, Kans
- Formal Object-Oriented Development. Kevin Lano
- The B Language and Method - A Guide to Practical Formal Development. K Lano
- Software Abstractions. Logic, Language, and Analysis. Daniel Jackson
- Model-Based Software Testing and Analysis with C#. Jacky et al

1.3.1 VDM

- Formal Specification and Design. Feijs, Jonkers
- Validated Designs for Object-Oriented Systems. Fitzgerald et al
- Modelling Systems - Practical Tools and Techniques in Software Development. Fitzgerald, Larsen
- Systematic Software Development Using VDM. Cliff Jones

1.3.2 Z

- Using Z - Specification, Refinement, and Proof. Woodcock, Davies
- Formal Specification and Documentation using Z: A Case Study Approach. Jonthan Bowen
- The Way of Z - Practical Programming with Formal Methods. Jonathan Jacky

1.4 Articles

- Proving Program Refinements and Transformations (1989). Ward
- Loop Invariants: Analysis, Classification, and Examples. Furia, Meyer, Velder
- Well-founded Induction and the Invariance Theorem for Loops. Morris
- Laws of Data Refinement. Morris
- A Theoretical Basis for Stepwise Refinement and the Programming Calculus. Morris
- Programming as a Mathematical Exercise. Abrial, Shepherdson, Hillmore, Constable
- A Weaker Precondition for Loops. Boom
- Predicative Programming Part I & II. Hehner
- Programs are Predicates. Hoare
- Invariant Based Programming: Basic Approach and Teaching Experiences. Ralph Back
- Data Refinement of Invariant Based Programs. Preoteasa, Ralph Back
- Structured Calculational Proof. Ralph Back, Jim Grundy, von Wright
- Structured Derivations: A Unified Proof Style for Teaching Mathematics. Ralph Back

- Invariant Diagrams with Data Refinement. Ralph Back
- Program Derivation by Fixed Point Computation. Jiazhen Cai, Robert Paige
- Ten Years of Hoare's Logic: A Survey - Part I & II. Apt
- The Axiomatic Semantics of Programs Based on Hoare's Logic. Bergstra, Tucker

1.4.1 Pointer Programs

- Applying Light-Weight Theorem Proving to Debugging and Verifying Pointer Programs. Ranise
- Verifying Reachability Invariants of Linked Structures. Nelson
- Proving Pointer Programs in Higher-Order Logic. Mehta, Nipkow
- Derivation of Graph and Pointer Algorithms. Moeller
- A Framework for Program Verification in the Context of Linked Structures and Pointer Variables
- Completeness and Expressiveness of Pinter Program Verification by Separation Logic. Tatsuta, Chin, Al Ameen
- Calculating a Garbage Collector. Berger, Meixner, Moeller
- Calculating with Pointers. Bijlsma
- Towards Pointer Algebra. Moeller
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