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Nota di contenuto	Memorial Session -- A.P. Ershov— A Pioneer and a Leader of National Programming -- A.A. Lyapunov and A.P. Ershov in the Theory of Program Schemes and the Development of Its Logic Concepts -- Computing and Algorithms -- The Abstract State Machine Paradigm: What Is in and What Is out -- On Algorithmic Unsolvability -- Logical Methods -- Resolution and Binary Decision Diagrams Cannot Simulate Each Other Polynomially -- On Expressive and Model Checking Power of Propositional Program Logics -- An Extension of Dynamic Logic for

Modelling OCL's @pre Operator -- Optimal Algorithms of Event-Driven Re-evaluation of Boolean Functions -- Verification -- A Transformation of SDL Specifications— A Step towards the Verification -- Accurate Widenings and Boundedness Properties of Timed Systems -- Adaptive Saturation-Based Reasoning -- A Verification Approach for Distributed Abstract State Machines -- Program Transformation and Synthesis -- Transformational Construction of Correct Pointer Algorithms -- A Theoretical Foundation of Program Synthesis by Equivalent Transformation -- Equivalent Transformation by Safe Extension of Data Structures -- Semantics and Transformations in Formal Synthesis at System Level -- Automated Program Synthesis for Java Programming Language -- Semantics & Types -- The Varieties of Programming Language Semantics And Their Uses -- Binding-Time Analysis for Polymorphic Types -- An Investigation of Compact and Efficient Number Representations in the Pure Lambda Calculus -- Processes and Concurrency -- Observational Semantics for Timed Event Structures -- The Impact of Synchronisation on Secure Information Flow in Concurrent Programs -- Dynamical Priorities without Time Measurement and Modification of the TCP -- UML Specification -- From ADT to UML-Like Modelling -- Transformation of UML Specification to XTG -- Petri Nets -- A Systematic Approach towards Object-Based Petri Net Formalisms -- Unfoldings of Coloured Petri Nets -- A Net-Based Multi-tier Behavior Inheritance Modelling Method -- Testing -- Specification Based Testing: Towards Practice -- Java Specification Extension for Automated Test Development -- Specification-Based Testing of Firewalls -- Software Construction -- Academic vs. Industrial Software Engineering: Closing the Gap -- A Method for Recovery and Maintenance of Software Architecture -- An Empirical Study of Retargetable Compilers -- Data & Knowledge Bases -- Conceptual Data Modeling: An Algebraic Viewpoint -- Integrating and Managing Conflicting Data -- A Knowledge Engineering Approach to Deal with 'Narrative' Multimedia Documents -- Using Agents for Concurrent Querying of Web-Like Databases via a Hyper-Set-Theoretic Approach -- Logic Programming -- Reexecution-Based Analysis of Logic Programs with Delay Declarations -- Pos(T): Analyzing Dependencies in Typed Logic Programs -- A Prolog Tailoring Technique on an Epilog Tailored Procedure -- Constraint Programming -- Hierarchical Constraint Satisfaction Based on Subdefinite Models -- Using Constraint Solvers in CAD/CAM Systems -- A Graphical Interface for Solver Cooperations -- Program Analysis -- Abstract Computability of Non-deterministic Programs over Various Data Structures -- On Lexicographic Termination Ordering with Space Bound Certifications -- Generalised Computability and Applications to Hybrid Systems -- Language Implementation -- Exploring Template Template Parameters -- Compiler-Cooperative Memory Management in Java -- A Software Composition Language and Its Implementation -- Editor Definition Language and Its Implementation -- Oberon-2 as Successor of Modula-2 in Simulation.

## Sommario/riassunto

This book constitutes the thoroughly refereed post-proceedings of the 4th International Andrei Ershov Memorial Conference, PSI 2001, held in Akademgorodok, Novosibirsk, Russia, in July 2001. The 50 revised papers presented together with 2 invited memorial papers devoted to the work of Andrei Ershov were carefully selected during 2 rounds of reviewing and improvement. The book offers topical sections on computing and algorithms, logical methods, verification, program transformation and synthesis, semantics and types, processes and concurrency, UML specification, Petri nets, testing, software construction, data and knowledge bases, logic programming, constraint

programming, program analysis, and language implementation.

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