



Design and Analysis of Purely Functional Programs

By Christian Rinderknecht

College Publications, United Kingdom, 2012. Paperback. Book Condition: New. 236 x 155 mm. Language: English . Brand New Book ***** Print on Demand *****.This new edition contains new chapters for undergraduates, where the progression is purposefully slow and every step explained. The chapter on merge sort has been rewritten for better clarity and new results were included. A large chapter on XSLT has been added. This book addresses a priori different audiences whose common interest is functional programming. For undergraduate students, we offer a very progressive introduction to functional programming, with long developments about algorithms on stacks and some kinds of binary trees. We also study memory allocation through aliasing (dynamic data-sharing), the role of the control stack and the heap, automatic garbage collection (GC), the optimisation of tail calls and the total allocated memory. Program transformation into tail form, higher-order functions and continuation-passing style are advanced subjects presented in the context of the programming language Erlang. We give a technique for translating short functional programs to Java. For postgraduate students, each functional program is associated with the mathematical analysis of its minimum and maximum cost (efficiency), but also its average and amortised cost. The peculiarity of our approach is...



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