



The MMIX Supplement: Supplement to The Art of Computer Programming Volumes 1, 2, 3 by Donald E. Knuth

By Martin Ruckert

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“I encourage serious programmers everywhere to sharpen their skills by devouring this book.”

–Donald E. Knuth

In the first edition of Volume 1 of *The Art of Computer Programming*, Donald E. Knuth introduced the MIX computer and its machine language: a teaching tool that powerfully illuminated the inner workings of the algorithms he documents. Later, with the publication of his *Fascicle 1*, Knuth introduced MMIX: a modern, 64-bit RISC replacement to the now-obsolete MIX. Now, with Knuth’s guidance and approval, Martin Ruckert has rewritten *all* MIX example programs from Knuth’s Volumes 1-3 for MMIX, thus completing this MMIX update to the original classic.

Building on contributions from the international MMIXmasters volunteer group, Ruckert fully addresses MMIX basic concepts, information structures, random numbers, arithmetic, sorting, and searching. In the preparation of this supplement, about 15,000 lines of MMIX code were written and checked for correctness; over a thousand test cases were written and executed to ensure the code is of the highest possible quality.

The MMIX Supplement should be read side by side with *The Art of Computer Programming, Volumes 1-3*, and Knuth’s *Fascicle 1*, which introduces the MMIX computer, its design, and its machine language. Throughout, this supplement contains convenient page references to corresponding coverage in the original volumes. To further simplify the transition to MMIX, Ruckert stayed as close as possible to the original—preserving programming style, analysis techniques, and even wording, while highlighting differences where appropriate. The resulting text will serve as a bridge to the future, helping readers apply

Knuth's insights in modern environments, until his revised, "ultimate" edition of *The Art of Computer Programming* is available.

From Donald E. Knuth's Foreword:

"I am thrilled to see the present book by Martin Ruckert: It is jam-packed with goodies from which an extraordinary amount can be learned. Martin has not merely transcribed my early programs for MIX and recast them in a modern idiom. He has penetrated to their essence and rendered them anew with elegance and good taste. His carefully checked code represents a significant contribution to the art of pedagogy as well as to the art of programming."

Dr. Martin Ruckert maintains the MMIX home page at mmix.cs.hm.edu. He is professor of mathematics and computer science at Munich University of Applied Sciences in Munich, Germany.

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Editorial Review

About the Author

Dr. Martin Ruckert maintains the MMIX home page at mmix.cs.hm.edu. He is professor of mathematics and computer science at Munich University of Applied Sciences in Munich, Germany.

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Norberto Brody:

Reading a guide tends to be new life style on this era globalization. With examining you can get a lot of information that may give you benefit in your life. Having book everyone in this world can share their idea. Textbooks can also inspire a lot of people. A great deal of author can inspire their reader with their story or perhaps their experience. Not only the story that share in the textbooks. But also they write about advantage about something that you need example. How to get the good score toefl, or how to teach your sons or daughters, there are many kinds of book which exist now. The authors on this planet always try to improve their ability in writing, they also doing some study before they write with their book. One of them is this The MMIX Supplement: Supplement to The Art of Computer Programming Volumes 1, 2, 3 by Donald E. Knuth.

Katie Johnson:

Why? Because this The MMIX Supplement: Supplement to The Art of Computer Programming Volumes 1, 2, 3 by Donald E. Knuth is an unordinary book that the inside of the reserve waiting for you to snap the idea but latter it will jolt you with the secret it inside. Reading this book beside it was fantastic author who write the book in such awesome way makes the content inside easier to understand, entertaining method but still convey the meaning entirely. So , it is good for you for not hesitating having this anymore or you going to regret it. This excellent book will give you a lot of positive aspects than the other book have got such as help improving your expertise and your critical thinking technique. So , still want to delay having that book? If I ended up you I will go to the book store hurriedly.

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