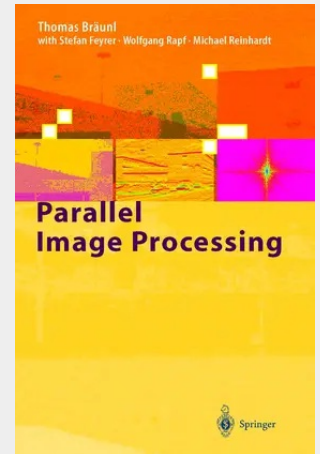


Parallel Image Processing

This book developed out of a series of publications in the area of image processing with massively parallel algorithms. The topic of image processing is a particularly promising area for the use of synchronous massively parallel or data-parallel computer systems which work according to the SIMD principle (single instruction, multiple data). While the era of large SIMD super-computers has passed, SIMD systems have come back as dedicated vision subsystems and will soon be found even in embedded systems. In comparison to conventional sequential implementations of basic image operations, this book illustrates the intrinsic parallelism which is almost always present in image processing. By utilising parallel algorithms it is even possible to illustrate operations in a simpler and easier to understand way than for the sequential case. The presentation method chosen for this book assumes that short, terse excerpts of program code will significantly enhance the understanding of the material, e.g. of image operations, while longer listings are more likely to distract from the topic. For this reason, each chapter will not only define and explain the central image processing algorithms with the help of examples, but will also give an excerpt of a massively parallel program. For image processing this means that at least virtually there should be one processor available for each pixel. The mapping onto a smaller number of existing compilers, and as of using real processors is done transparently the such is not interest here.

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