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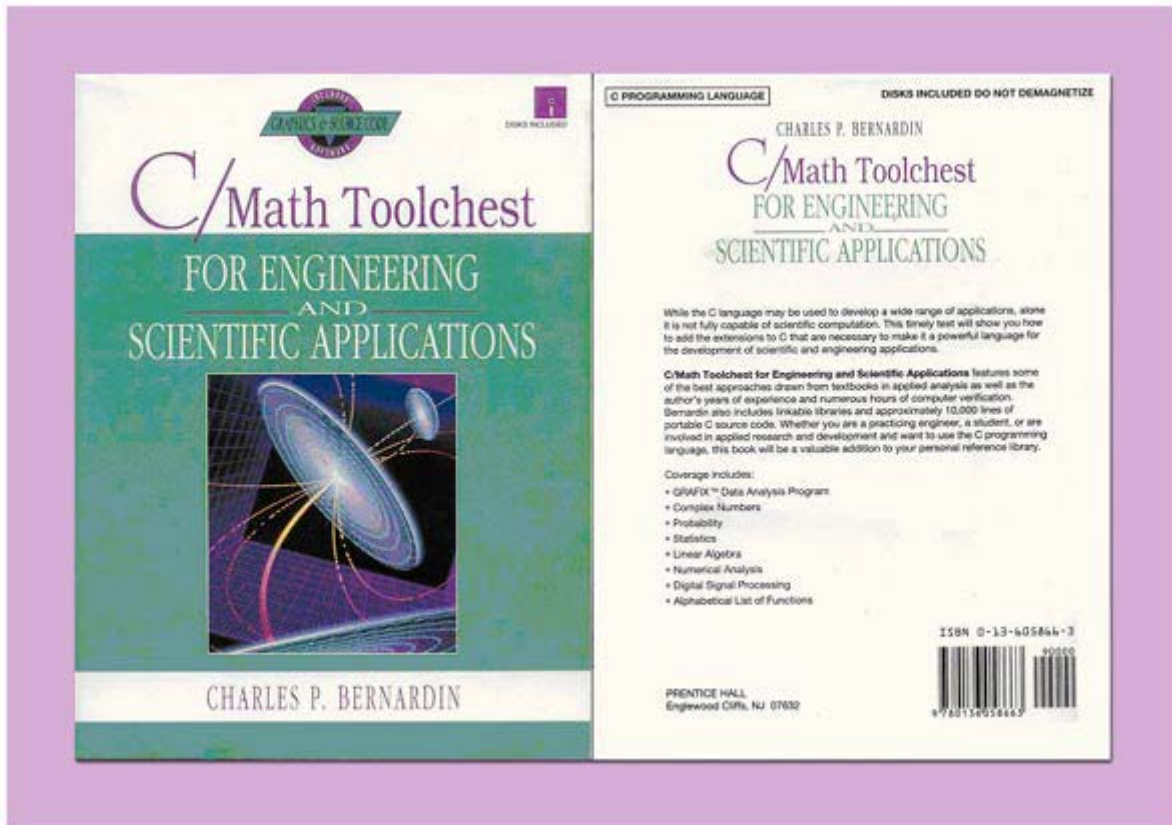
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See Inside This Book

A MATH TOOLCHEST

C/MATH TOOLCHEST FOR ENGINEERING AND SCIENTIFIC APPLICATIONS by Charles Bernardin Prentice Hall, ISBN 0-13-605866-3, \$ 65



Math Toolchest for Engineering and Scientific Applications by Charles Bernardin is not casual reading. Neither is it a reference work, a tutorial, or general review of computational algorithms. It is a fine and coherent collection of C functions that Bernardin has gathered over several years for use in his work as a professional signal-processing engineer. This book, and the accompanying disks, are not simply a collection of routines picked up in the public domain and repackaged. Rather, this is a professional set of tools that includes proper error-handling and signaling routines.

Although the book's accompanying software is distributed on PC disks, the code is written in standard ANSI C and is portable to any platform. Over 170 functions span the range from common complex number manipulations to less common matrix and vector manipulations. The functions are grouped into major areas: complex arithmetic, matrix and vector manipulations (for both real and complex values), probability, statistics, numerical analysis, and signal processing. Bernardin's own interests are evident in the large section of signal-processing and filtering routines.

Another example of the professional quality of these routines is that all of the matrix and vector functions use a dynamic runtime memory allocation scheme that allows array sizes to be determined as the data is generated. A charting package from Mix Software is also provided that lets you view the results from some of these sample programs. These are not necessarily award-winning graphs, but they're quite sufficient for viewing experimental data. Professional engineers, programmers, and students will find a wealth of useful routines to address their numerical problem solving requirements.

—Raymond GA Côté

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DR. CHARLES P. BERNARDIN: PATENTS

- “*Methods and Apparatus for Predicting Voice Quality in AMPS Cellular Radio Systems*,” Patent # 5,710,791 January 20, 1998
- “*Method and Apparatus for a Radio Telephone System Optimized for Cell Boundary Coverage Reliability*,” Patent # 5,966,661 October 12, 1999
- “*Method and Apparatus for Minimizing the Number of Samples Needed to Determine Cell Radius Coverage Contour Reliability in a Radio Telephone System*,” Patent # 5,983,106 November 9, 1999

- *“Method and Apparatus for Estimating Cell Radius and Area Coverage Reliability in a Radio Telephone System,”* Patent # 6,006,095 December 21, 1999
- *“Method and Apparatus for Minimizing the Number of Samples Needed to Determine Cell Area Coverage Reliability in a Radio Telephone System,”* Patent # 6,041,236 March 21, 2000
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DR. CHARLES P. BERNARDIN: PUBLICATIONS

“[The 3rd Order Algebraic Eigenvalue Problem on a TI 83-84 Calculator](#)”, a teaching essay for ENGR2300 Linear Algebra, July 2013

“A Review of Polynomial Calculus I Concepts” a problem-based summary of the major concepts in Calculus I, July 2013

“Controlling Type II Diabetes with Diet and Exercise”, prepared for and presented in Lectures in Biomedical Engineering EEBM-BMEN6376 Fall 2012, UTD

About 80 slides including topics such as the endocrinology of the pancreas, the biochemistry of carbohydrate and fat metabolism, obesity and its related diseases, benefits of a low carbohydrate diet and weight loss modeling.

“[Recommended daily caloric intake](#)” (with Aage Moller) poster presentation at the Experimental Biology Conference Apr 20-24, 2013 in Boston. The daily caloric intake needed for aging sedentary men and women in the US is investigated

“[Adult onset obesity and type 2 diabetes: a metabolic model](#)” (with Aage Moller) poster presentation at the Experimental Biology Conference Apr 20-24, 2013 in Boston

A first-order metabolic model that describes human physiological weight loss based on the calorimetric measurements of Mifflin (1990).

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“Cell Radius: A Better QoS Measure than Area Reliability,” in *International Engineering Consortium Wireless Engineering ComForum*, Richardson, TX, November 17-18, 1998.

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“Cell Radius: A Better RF Validation Criterion than Area Reliability,” in *1st Annual UCSD Conference on Wireless Communications*, La Jolla, CA. 3/8-10/98.

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