



Book Reviews

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Practical Interfacing in the Laboratory: Using a PC for Instrumentation, Data Analysis, and Control,

by Steven E. Derenzo, Cambridge University Press (2003), 610 pp., \$65.00 hardback.

This book describes in simple, direct, and practical terms exactly how one goes about interfacing a computer to the laboratory. It is intended to be used as an upper-division undergraduate text for science or engineering students, and it is also useful as a reference.

The book is divided into five chapters, any three of which would make for a busy semester-long course. Each chapter contains an extensive problem set and an even larger set of laboratory exercises.

The first three chapters introduce the basics: digital electronics, analog electronics, and how to convert between the two. The sheer volume of information is somewhat intimidating at first, particularly in the first chapter, but the well-considered flow of the presentation makes it easy to follow. Each section contains not only general information about the theory of operation, but also specific detail about the chips typically used for each purpose. Much of the analog chapter is dedicated to noise and filtering, in addition to the usual coverage of basic op-amp circuits, which adds greatly to the book's usefulness in the real world of laboratory interfacing. In keeping with the emphasis on applications, much of the chapter on conversion is dedicated to the ad-

vantages and disadvantages of each method described.

Having covered signals and how to get them in and out of the computer, the book's fourth chapter goes on to cover actual sensors and controls. Coverage is broad, though necessarily shallow due to space constraints.

The final chapter is dedicated to computer methods of data analysis and seems somewhat off topic at first. In my own upper-division laboratory course, however, I have found that the students often spend as much time analyzing as they do collecting data; so having this chapter as part of the text is a good thing. One of the great strengths of this book is the superb set of laboratory exercises that accompany each chapter. Anyone who teaches an interfacing or upper-division laboratory course will want a copy of the book just for its wealth of creative ideas, regardless of whether they use it as a text. The one weakness is the specificity of the lab exercises to the Windows NT operating system, which is no longer supported by Microsoft. However, the changes necessary to change the exercises to Windows XP—or any of the good open-source alternatives—are not arduous.

Overall, this is a good text and worth consideration for anyone teaching a course in interfacing or experimentation.

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MicroReviews by the Book Review Editor

There are books by and about Einstein that all physics teachers should have, should have immediate access to, and should know exist for more serious study.

The Collected Papers of Albert Einstein Volume 9: The Berlin Years: Correspondence January 1919-April 1920

with accompanying paperback English Translation of non-English entries, Diana Kormos Buchwald (General Editor), with a host of editors, translators, and consultants, published by Princeton University Press (2004), 832 pp., plus 472 pp. in the English translation, \$110.00 + \$45.00.

This will probably be the definitive source on Einstein and, coupled with the English translations, is a great resource for practicing your German.

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Einstein Defiant: Genius Versus Genius in the Quantum Revolution,

by Edmund Blair Bolles, published by Joseph Henry Press, Washington, D.C. (2004), viii+348 pp.; ISBN: 0309089980 (hardback).

As you might have guessed, this is a story of Einstein versus Bohr that is well-written, engaging, and presents a good job of showing what science is and what scientists do in a way that would make a good story even if were not historically accurate.

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