Book Reviews

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DEEP - A Statistical System in Dental Epidemiology

MMV Medizin Verlag GmbH Muenchen, 1997
(Robert Koch-Institut-Schriften 2/96),
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DEEP - A Statistical System in Dental Epidemiology is a monograph going to the root of the key issues in epidemiological data analysis: a sensible data management system, a powerful statistical modelling tool and an easily accessible tool for graphical representation to ease the interpretation and understanding of statistical results. The other aspect of the book is a dental aspect. In clinical trials and intervention studies in the field of dentistry, oral epidemiologists are confronted with a multitude of highly complex methodological problems. They need specialised statistician, but there are not enough specialised statisticians whenever they are needed. Therefore this book is of great importance as a guideline for the statistician as well as for the epidemiologist to enable him to make his purposes clear, and to sharply formulate the hypothesis to be tested.

The book is structured in nine parts and appendix: Introduction, Dental terms, Statistical terms, Basic system usage, SIR data management, GLIM data management, Data analysis, Results presentation, Applications. *Introduction* describes the general purpose and scope of DEEP, as well as structure of the manual. *Dental terms* is dealing with DEEP terminology, dental and non-dental terms, dental notation, sample units, dental observation units, caries finding, prevalence and increment, sealing measures, plaque and bleeding measures and mapping of dental structures. *Statistical terms* covers sample structures, generalised linear models and submodels. *Basic system usage* covers tools like DOS, SIR, GLIM and PlitIT. *SIR data management* deals with database preparation, non-dental data management (e.g. persons and person groups), and dental data management. *GLIM data management* describes how to name files, describes main controls, randomisation, representativity, data selection, aggregation, creation, closing routine, data management report and tracing. Data analysis explains how to prepare a model, single fits and tests, sequences of fits and tests, confidence interval and submodel separation. Result presentation presents results as tables and graphics. Chapter Applications gives two examples, two studies, two DEEP applications (Kiel prophylaxis 1987-90, Berlin prophylaxis 1992-96). In *Appendix* there are flowcharts of some procedures, control files and macros what can be useful for user.

Dental epidemiological data usually contain severe inhomogeneities. Measures like tooth eruption and caries vary both within the same dentition by the anatomical site and between probands by their socio-economic status. Dental epidemiological results, based on the same data, may differ by referring to such inhomogeneities concerning data recording, data aggregation, and statistical modelling, differently. DEEP supports the exploitation of common dental epidemiological knowledge for data analysis, including handling of the inhomogeneities.

The book, as the manual and guide for DEEP system, is addressed to researchers in dentistry, especially dental epidemiologists, but also to statisticians not specialised in the field of dentistry.

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Bill Erickson, Frank Romano

Professional Digital Photography

Prentice-Hall PTR, Upper Saddle River, NJ, 1999, pp. xvii, 317, ISBN 0–13–099745–5

This book deals with advances in photography due to digital technology. To cite the authors: "Think how art and science of photography is being changed and enhanced by the ability to scan, store and print pictures, and how networked computers allow us to put them at any place, on anything, any time... almost".

Bill Erickson is director of Color Imaging Technologies for the Rochester Institute of Technology Research Corporation. He has held advanced technology positions at various corporations in the imaging and printing industries. Frank Romano is a professor of Graphic Arts at the Rochester Institute of Technology. He is a widely- known educator and consultant, and the author of several best-selling graphics arts books.

In the first chapter, *The digital world*, a short history of photography is given, from the very beginning in the early 1800s to the digital revolution nowadays. In Chapter 2: *Photography*, the authors explain the basic concepts of traditional photographic technique. The standard film formats are discussed, including the new Advanced Photography System (APS). APS is a hybrid medium, bridging the gap between traditional and digital photography. In this chapter the procedures of film processing and printing the photographs on photographic paper are explained. Also the modern digital-enabled photo-minilab equipment is described.

Chapter 3: *Imaging* deals with the principles and techniques of image capture. It begins with halftoning - a technique of simulating gradations of image intensities by printing small dots of various densities, sizes and shapes. Then the differences between analog and digital representation of images are explained and several kinds of scanners are described. The principles of capturing images by the CCD as well as the CMOS sensors are described.

Chapter 4 is devoted to *Digital cameras*. After explaining the basic principles of digital cameras and commenting their advantages over traditional cameras, the authors explain image compression. They describe the widely used compression standards JPEG and FlashPix. The quality of digital cameras is discussed, as well as many of their features including resolution, zoom, accessory lenses, filters, LCD panels, storage devices, batteries etc. Chapter 5: Image manipulation explains how to connect our digital camera to a personal computer, transfer the images and how to further process them. First, the usual kinds of link between a camera and a computer are discussed: serial, parallel, SCSI and USB. Next, the need for image compression and the basic concepts are explained, together with several widely used file formats. Finally, the possibilities of image editing by using some imaging software is described. Devices and media that can be used for storing digital images are discussed in Chapter 6, as well as the ways of organizing and cataloging image data. This chapter also covers the possibilities of transferring images through E-mail or World Wide Web.

The next two chapters deal with technologies used to print digital images. An interested reader can find out many historical facts about printing technologies. One of the major discoveries was the process of electrophotography, usually referred to as xerography, which enabled the photocopiers, and later the laser printers. A reader can also learn details about dye sublimation, ion deposition and inkjet printing technology. Digital press technologies are also covered. In Chapter 9 the problems caused by inequality of colors obtained by different devices (scanners, cameras, monitors, printers) are discussed. Color management systems gather information on the way a device sees, displays or creates color and use this information to convert images from the color space of one device to that of another. A practical example of color management is given for Apple Macintosh with Adobe Photoshop and ColorSync.

The final chapter describes the workflow for printing and publishing production of documents incorporating digital photography. It includes scanning, creating component files (text, raster and vector images), image manipulation and color management, creating PostScript or PDF files, proofing and finally printing.

The book is easy to read even without any previous knowledge of either photography or com-

puters and can be recommended for anyone interested in the subject. Computer professionals can learn many interesting facts about photography and traditional press technology, while the photography experts should read it to keep pace with fastly developing digital technology.

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J. David Irwin, Chwan-Hwa Wu

Basic Engineering Circuit Analysis, 6/e

Prentice-Hall, Inc., New Jersey, 1998, 976 pages, ISBN 0–13–792714–2

J. David Irwin is the author or co-author of nine textbooks, past president of both the IEEE Education and Industrial Electronics Societies, former editor of the IEEE Transaction on Industrial Electronics and a Fellow of the IEEE. He was employed at Bell Telephone Laboratories, NJ prior to joining Auburn University. He has received many awards for education.

Chwan-Hwa Wu is the author or co-author of two textbooks, an associate editor of the IEEE Transaction on Industrial Electronics and a senior member of IEEE. He is currently an Alumni Professor at Auburn University.

"Basic Engineering Circuit Analysis" is an introductory electric circuits text which provides readers with a thorough understanding of the fundamental concepts of circuit analysis and their application to real-world problems. This sixth edition is abundantly supplied with examples, drill exercises and design problems, as well as explanations on how to use PSPICE® from OrCAD, a modern and very popular CAD tool, in the analysis and design of electric circuits.

The organization and presentation of the material is designed to enable students to understand and apply the fundamentals as quickly as possible. The presentation begins with a discussion of circuit elements, followed by resistive circuits and circuits with operational amplifiers, then transients, sinusoidal steady state, frequency response, and ends with Laplace and Fourier methods of analysis.

In spite of the numerous textbooks on circuit analysis, students often find the course difficult to learn. The main objective of every book, to present the material in a manner that is clear, interesting and easy to understand, is achieved and enhanced in the following ways:

- Chapter Openers provide a topic preview within the chapter.

- Side Column Comments provide guidance for understanding different facets of the presentation.

- Chapter Summeries serve as quick reminders for readers.

- Circuit Design sections give students an opportunity to design, in contrast to usual analysis procedures.

- Computer-Aided Design Tool, PSPICE® from OrCAD, is employed in the text to help students learn state-of-the-art CAD tool and its purpose in engineering.

This book is an ample supply of examples, drill problems, extension exercises and simplified real world applications accompanied by thorough, clear and effective explanations of methods that have to be used in solving the problems.

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