

AVAILABLE

LITERATURE

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AUDIO ANECDOTES: TOOLS, TIPS, AND TECHNIQUES FOR DIGITAL AUDIO, Edited by Ken Greenebaum and Ronen Barzel, A. K. Peters, Ltd., 2004, Wellesley, MA, USA, hardcover 456 pages, ISBN 1-56881-214-0, \$65.

The volume *Audio Anecdotes: Tools, Tips, and Techniques for Digital Audio* is much more than the title says it is. The twenty-five articles included cover a wide array of topics in digital audio in an introductory style. Some of them actually are anecdotal, for example: "I had been given the task of improving audio quality in a fixed-point MP3 encoder designed for use in stereo components and portable recording devices. It had to be fast, and it had to sound good. I knew it was going to be a long night." Others are anything but, such as DiFilippo and Greenebaum's discussion of "Perceivable Auditory Latencies."

The wonderful thing about this book is that it contains well-written introductions to many subjects, including sound propagation, auditory scene analysis, audio file formats, and rate conversion, that otherwise might be found in magazines, on the Internet, or not at all. It will be particularly valuable to C programmers, since many of the discussions list C code in the text. A CD-ROM on the back cover includes computer files of the code as well as audio examples.

The odd thing about the book is that it covers such a broad range of issues in such a wide variety of ways. The chapter headings give an idea of the volume's scope: Measurement, Perception, Recording, Synthesis, Signal

Processing, Computer Techniques, Computer Tools, and Human Experience. Each chapter contains three or four articles, usually by different authors. Everything is more or less at an introductory level, which might lead one to conclude that the volume is aimed at students. Reading the whole, however, promotes the impression that it is really a book for both professionals and students interested in audio. The scope is so large that no one will be an expert in all of it. This is a book that probably would not fit comfortably in any single college course, but one that everyone involved in digital audio will pull off the shelf and refer to many times.

Many of the articles are simply useful and good to have stored in a readily accessible place. For example, Hershman Fouad's discussion "Understanding the Decibel" relates the fundamentals of the decibel scale, including the relevant formulas and extensions with weighting filters. In this, as in all of the articles, the references are annotated to give the interested reader a better idea of where to turn for more information.

Other articles are more extensive, such as "Controlling the Perceptual Organization of Sound" by Albert Bregman and Wieslaw Woszczyk. Bregman's work on auditory scene analysis is well-known, and his book on the subject is the primary reference in the field. Here the ideas are succinctly presented to an audience interested in digital audio — heretofore the greatest following of this research has tended to be in the areas of music cognition and cognitive psychology more generally. The

overview here demonstrates why audio professionals should be interested and lays the groundwork for a follow-up article on "Creating Mixtures: The Application of Auditory Scene Analysis (ASA) to Audio Recording," to appear in the third volume of *Audio Anecdotes*. The exposition here, beyond expanding the application area of the work, is broadly useful: students of music cognition will be well rewarded for finding this essay. There is no better short introduction to the principles of auditory scene analysis.

Similarly, Perry Cook's "Introduction to Physical Modeling" explains the basic issues in the field with a series of C programs that demonstrate the concepts. Anyone interested in physical modeling, and particularly anyone interested in programming a physical model, could not do better than to start with this essay.

It is interesting to note that subsequent volumes of the series are already in the works: this format is like a Swiss army knife of information about digital audio. Certainly there is much more that could be treated in this way. The format of these books is unusual, and for that reason it is difficult to know what to expect from the cover (particularly when it is only a picture of the cover on a Web site). Referring to the content as anecdotes, though that does in some sense cover the practical and personal nature of the contributions, may also make it appear to be less than it is: a fine and authoritative collection of essays on fundamental issues in digital audio.

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