Book Reviews

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BOOK REVIEWS

Jesús Rogel-Salazar: ESSENTIAL MATLAB® AND OCTAVE. CRC Press, Taylor & Francis Group, Boca Raton, 2015, xxvi + 261 pages, paperback, ISBN: 978-1-4822-3463-3.

Simply, this is an ideal textbook for those who wish to learn elements of scientific programming but hesitate to make the first step.

Let us recall that both MATLAB® and Octave are high-level languages oriented to numerical computations and data visualization. The former is a commercial product well established in academic as well as industrial research, whereas the latter is a major open-source alternative to MATLAB® and is distributed for free under the terms of the GNU General Public License. The languages are, to a large extent, syntactically compatible so that most programs are easily portable.

The textbook under review skilfully leads the reader from elementary topics to more advanced applications. The chapter titles are self-explanatory: The Essential Essentials, Vectors and Vector Operators, Matrices and Matrix Operators, Plotting, Programming MATLAB® and Octave, MATLAB® and Octave in Action. Let us pay more attention to the last two chapters.

Programming MATLAB® and Octave is the longest chapter of the book. The reader is informed about program flow control instructions, loops, build-in functions, user-written functions, function handles, reading and writing files, and debugging.

Familiarity with these tools makes the reader ready for the last chapter. It focuses on applications such as, for instance, portfolio risk modeling, a predator-prey model, signal processing, wave equation, or Schrödinger equation.

Each chapter is closed by an exercise section. The textbook also includes a short list of differences between MATLAB® and Octave, a bibliography, and an index.

As already indicated, the textbook targets readers who need or wish to enter the realm of scientific computing and look for help. By reading the book, they will find themselves on a tour starting from elementary high school mathematics and, due to the author's teaching skill, almost effortlessly ending in the world of differential equations.

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