

MEASUREMENT DATA MODELING AND PARAMETER ESTIMATION

BY ZHENGMING WANG, DONGYUN YI, XIAOJUN DUAN, JING YAO, AND DEFENG GU, CRC PRESS, 2011, ISBN 978-1-4398-5378-8, HARDCOVER, 531 PAGES

REVIEWER: JANUSZ GOZDECKI

Measurement data processing is a very important step in any scientific experiment, enabling reliable interpretation of raw measurement data. The same applies in any control process based on the output of measured parameters. The main focus of “Measurement Data Modeling and Parameter Estimation” is to present various aspects of processing data obtained from different types of measurements. The book shows how to estimate parameters and errors, detect outliers, test hypotheses, and construct models of measured processes. The book combines mathematics and its application to measurement data in aerospace (radar and satellite systems).

The book is divided into seven chapters and two annexes. Chapters from 1 to 5 elaborate on the mathematical apparatus for processing measurement data, while chapters 6 and 7 are dedicated to the application of mathematical methods presented in preceding chapters. Each chapter constitutes an independent part that ends with a set of exercises and a list of references on the addressed issues. It is possible to read chapters independently, but only provided that the essentials dealt with in other chapters are assimilated by the reader from other sources.

In the opening chapter, the introduction to the measure-

ment errors theory and processing static measurement data are presented. The authors perfectly systematize the relevant knowledge. In the second chapter, “Parametric Representation of Functions to be Estimated,” the authors present the application of the function approximation and other mathematical methods to find an unknown function representing the signals from dynamic measurement targets. The information presented in this chapter is the basis for constructing regression models of information to be estimated, which is presented in chapter 3. Also, model evaluation and optimization of regression models is studied therein. Chapter 4 introduces another group of methods to be used for analysis of measurement data, namely, stationary and non-stationary time series methods. In chapter 5, the use of Kalman filtering for processing real-time measurement data is contained. The last two chapters discuss the application of mathematical models to measurements in radar systems, and for precise orbit determination of LEO satellites.

The book is written with a language easy to understand, it gives many valuable examples illustrating the usage of the presented mathematical models. Nevertheless, a strong mathematical background is required to comprehend the contents in detail. The book contains many definitions, theorems, and proofs. Basic mathematical skills are sufficient to assimilate knowledge given only in the first chapter. On the other hand, many aspects of the book are also perfectly aimed at a studying reader, such as inclusion of block algorithms useful for software implementation and many examples of applications related to aerospace. The fact that the field is limited to only one area is not a drawback. Aerospace measurements, as the authors showed, involve many complex sources of errors and measurements of dynamic values, providing a good opportunity to present various models and methods. As they can be successfully applied in other areas of research, the book will be interesting for a broad scope of readers.

The presented knowledge is helpful not only for processing data, but also for planning of the measurement process. Summing all the above, I can recommend the book for graduate students, practitioners, and researchers.

DOES MY WORK MATTER? THE HIDDEN TREASURE IN THE WORK WE DO

CHARLES R. BAUGH, C.R. BAUGH AND ASSOCIATES, 2011, ISBN 879-1466320277, SOFTCOVER, 153 PAGES

REVIEWER: LES BAXTER

As the title implies, this book addresses the search for meaning and value in our work. Many people feel that work is a necessary evil that they would not do if they did not need the paycheck. Others find great purpose, meaning, and fulfillment in their work for reasons that have nothing to do with financial compensation. This book can help you understand why this happens and how to find the “hidden treasure” in your work. Mr. Baugh writes this book from the perspective of a multi-decade veteran of the telecommunications industry, starting at Bell Laboratories, moving on to several other companies, and finally founding his own consulting firm. His message is equally applicable to people in other technical or non-technical fields.

1st Fed4FIRE Competitive Call for additional Project Partners

Fed4FIRE, a project currently active in the Seventh Framework programme of the European Community for research, technological development and demonstration activities contributing to the creation of the European research area and to innovation (2007–2013) requires the participation of new partners to carry out certain tasks within the project.

In particular the tasks pertain to the:

- A) Execution of innovative experiments that demonstrate technological expertise, scientific novelty and quality in the area of Future Internet (e.g. in domains such as wired and wireless IP networks, cloud computing, software defined networks and innovative Internet services)
- B) Inclusion of additional experimentation facilities to enlarge the scope and reach of the Fed4FIRE federation as well as enhance the service offer.

Max. budget for tasks under

- A) 600,000 €
- B) 300,000 €

Max. funding request per proposal under

- A) 80,000 €
- B) 100,000 €

Project full name:

Fed4FIRE: Federation for FIRE
 Project grant agreement number: 318389
 Call identifier: Fed4FIRE-1
 Call title: Innovative Experiments and Additional Experimentation Facilities

Language in which the proposal must be submitted: English

Submission deadline: 31 July 2013, at 17:00 Brussels local time

Detailed information about the open call and its aspects can be retrieved online, including:

- Call announcement
- General Information and Requirements
- Description of technical work and tasks expected
- Guide for applicants
- Frequently asked questions

Proposal submission is accepted only electronically.

Internet address for submission and full open call information:
www.fed4fire.eu

Contact: Anastasius Gavras, Eurescom, phone: +49 6221 9890

E-mail: contact@fed4fire.eu



FED4FIRE

This is a very interesting book. It is a small volume that is fairly quick to read. But like many good books, you will spend a lot more time thinking about the concepts that Mr. Baugh discusses than you spent reading the book.

Throughout the book, Mr. Baugh advocates a people-centric approach. He emphasizes the value of caring deeply about all the people involved, including employees, customers, suppliers, and investors. He advocates the view that “business success is the constraint, not the purpose.”

The book is nicely organized into eight sections, each of which consists of a chapter and several case studies. The sections are:

- The vantage point for discovery: finding meaning and purpose in your work.
- Products and services — people first: an avenue for caring about people.
- Multiple playing fields: there are many different careers that can lead to a fulfilling career (business, education, government, non-profit organizations, etc.).
- Mark of a ‘hidden treasure’ company: business is ultimately all about people.
- Mark of a ‘hidden treasure’ leader: people-focused leadership that emphasizes development of employees rather than just making money.
- A powerful engine of business: getting beyond our self, different motivations to excel.
- Three tools of the trade: competency (tools for making people successful), character (driver of trust), and caring (committing to the right priorities).
- Conclusion — pathways to the hidden treasure in the work we do: choosing the proper vantage point to uncover your purpose.

Each section contains one or more case studies (17 in all) which reinforce and give practical application to the material discussed in the preceding chapter. These case studies (which average about three pages in length) consist of first-person accounts of an individual’s journey in the search for meaning and satisfaction in career and life. One of the main themes of this book is that there is no ‘right’ way to find purpose and meaning. These personal stories vividly illustrate that each person must decide what is best for oneself.

This is a very interesting book. It is a small volume that is fairly quick to read. But like many good books, you will spend a lot more time thinking about the concepts that Mr. Baugh discusses than you spent reading the book. It is particularly well suited for young people who are just starting their careers and would like to optimize the value they create and the meaning they find in their work. It is also a good match for people in the middle or later stage of their career who want to gain a greater appreciation of the non-monetary aspects of their work.

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