Book Review

Diagnosis of Process Nonlinearities and Valve Stiction: Data Driven Approaches

by M. A. A. Shoukat Choudhury, Sirish L. Shah and Nina F. Thornhill (Springer-Verlag, ISBN: 978-3-540-79223-9, 2008)

As a signal processing researcher I enjoyed reading this book. This book covers materials on noninvasive diagnosis and quantification of valve stiction, often responsible for poor control loop performance, using signal processing techniques. Using only the routine operating data from the process, higher order statistics based induces were developed for detection and quantification of valve stiction, and verified for industrial applications. At the end, compression effect on routine process data in terms of quality degradation and nonlinearity induction have been investigated in this book.

This book is particularly aimed at the practicing engineers; though some chapters are recommended to graduate students by the authors. The book is organized in 19 chapters. The book begins with the basic signal processing theories in compact form. Some readers may find these chapters very elementary.

The material is well organized and is readily understood. In my opinion, the significant limitation of the book is in its limited in-depth analysis of the problems. More examples from the industries may be collected to devise generalized solution of the valve stiction and other interesting problems encountered in process control.

The authors may consider writing a revised version of this book which might be suitable for both the undergraduate and graduate students in addition to the practitioners and researchers of chemical engineering. I would recommend this book to control engineers and researchers who are interested to know signal processing methods for noninvasive diagnosis of control valve problems. A process control engineer will not find all solutions to his/her problems but it definitely open up new windows for combating challenges of the real world.

Md. Kamrul Hasan
Bangladesh University of Engineering
and Technology, Dhaka 1000
Bangladesh