
Series Editors' Foreword

The series *Advances in Industrial Control* aims to report and encourage technology transfer in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. New theory, new controllers, actuators, sensors, new industrial processes, computer methods, new applications, new philosophies..., new challenges. Much of this development work resides in industrial reports, feasibility study papers and the reports of advanced collaborative projects. The series offers an opportunity for researchers to present an extended exposition of such new work in all aspects of industrial control for wider and rapid dissemination.

Computational Intelligence is a newly emerging discipline that, according to the authors Ajoy Palit and Dobrivoje Popovic, is about a decade old. Obviously, this is a very young topic the definition and content of which are still undergoing development and change. Nonetheless, the authors have endeavoured to give the topic a framework and demonstrate its procedures on challenging engineering and commercial applications problems in this new *Advances in Industrial Control* monograph, *Computational Intelligence in Time Series Forecasting*.

The monograph is sensibly structured in four parts. It opens with an historical review of the development of “Soft Computing” and “Computational Intelligence”. Thus, Chapter 1 gives a fascinating insight into the way a new technology evolves and is consolidated as a self-evident discipline; in this case, proposals were made for constituent methods and then revised in the light of applications experience and the development of new methodologies which were added in to the core methods. No doubt the debate will continue for a few more years before widely accepted subject definitions appear, but it is very useful to have a first version of a “Computational Intelligence” technology framework to consider.

In Part II, the core methods within Computational Intelligence are presented: neural networks, fuzzy logic and evolutionary computation – three neat self-contained presentations of the building blocks for advanced development. It is in Part III that new methods are developed and presented based on hybridisation of the three basic routines. These new hybrid algorithms are demonstrated on various application examples. For the practicing engineer, chapters in Part II and III should almost provide a self-contained course on Computational Intelligence methods.

The current and future development of Computational Intelligence methods are the subject of Chapter 10 which forms Part IV of the monograph. This chapter balances the historical perspective of Chapter 1 by attempting to identify new development areas that might be of significant interest to the engineer. This is not an easy task since even a quick look at Chapter 10 reveals an extensive literature for a rapidly expanding field.

This volume on Computational Intelligence by Dr. Palit and Dr. Popovic is a welcome addition to the *Advances in Industrial Control* monograph series. It can be used as a reference text or a course text for the subject. It has a good opening historical review and a nice closing chapter looking to the future. Most usefully, the text attempts to present these new algorithms in a systematic framework, which usually eases comprehension and will, we hope, lead the way to a new technology paradigm in industrial control methods.

M.J. Grimble and M.A. Johnson
Industrial Control Centre
Glasgow, Scotland, U.K.

Computational Intelligence in Time Series Forecasting
Theory and Engineering Applications

Palit, A.K.; Popovic, D.

2005, XXII, 372 p., Hardcover

ISBN: 978-1-85233-948-7