Studies in Computational Intelligence

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About this Series

The series “Studies in Computational Intelligence” (SCI) publishes new developments and advances in the various areas of computational intelligence—quickly and with a high quality. The intent is to cover the theory, applications, and design methods of computational intelligence, as embedded in the fields of engineering, computer science, physics and life sciences, as well as the methodologies behind them. The series contains monographs, lecture notes and edited volumes in computational intelligence spanning the areas of neural networks, connectionist systems, genetic algorithms, evolutionary computation, artificial intelligence, cellular automata, self-organizing systems, soft computing, fuzzy systems, and hybrid intelligent systems. Of particular value to both the contributors and the readership are the short publication timeframe and the world-wide distribution, which enable both wide and rapid dissemination of research output.

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Econometrics is a branch of economics that uses mathematical (especially statistical) methods to analyze economic systems, to forecast economic and financial dynamics, and to develop strategies for achieving desirable economic performance.

Traditional econometric techniques have been focused on the quantitative description of economic phenomena. However, the ultimate goal of econometrics—as well as the ultimate goal of science in general—is to predict future development of economics and to develop strategies that optimize the future state of economics. It is therefore desirable to develop techniques that are specifically aimed at predicting economic phenomena. Such predictive econometric techniques—and their applications to real-life economic and financial situations—are one of the main foci of this volume.

Another focus of this book is related to the fact that in the modern world, in which computers are ubiquitous, the amount of economic-related data generated and processed by these computers has grown exponentially. The amount of available economic data is so huge that many traditional statistical data processing algorithms are no longer capable of processing all these data in real time. To process this data, we need to utilize “big data” techniques specifically developed for processing such huge amounts of data and we need to develop big data versions of the state-of-the-art econometric techniques and algorithms. This is a new and promising direction in econometrics. Big data is the main subject of this volume’s keynote paper by Dr. Chaitanya Baru from the US National Science Foundation.

In addition to papers on predictive econometric techniques and on big data applications, this book also contains applications of more traditional statistical techniques to econometric problems.

We hope that this volume will help practitioners to learn how to apply new predictive and big data econometric techniques and help researchers to further improve the existing predictive and big data techniques and to come up with new ideas on how econometric techniques can utilize large amounts of data to make more accurate predictions.

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September 2017

Vladik Kreinovich
Songsak Sriboonchitta
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