Computational Intelligence

Computational Intelligence

for Engineering and Manufacturing

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This book is dedicated to the memory of Roberto Carranza E., who induced the authors the enthusiasm to jointly prepare this book.

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PREFACE

This book presents a selected collection of contributions on a focused treatment of important elements of Computational Intelligence. Unlike traditional computing, Computational Intelligence (CI) is tolerant of imprecise information, partial truth and uncertainty. The principle components of CI that currently have frequent application in Engineering and Manufacturing are: Neural Networks (NN), fuzzy logic (FL) and Support Vector Machines (SVM). In CI, NN and SVM are concerned with learning, while FL with imprecision and reasoning.

This volume mainly covers a key element of Computational Intelligence* learning. All the contributions in this volume have a direct relevance to neural network learning* from neural computing fundamentals to advanced networks such as Multilayer Perceptrons (MLP), Radial Basis Function Networks (RBF), and their relations with fuzzy set and support vector machines theory. The book also discusses different applications in Engineering and Manufacturing. These are among applications where CI have excellent potentials for use.

Both novice and expert readers should find this book a useful reference in the field of Computational Intelligence. The editors and the authors hope to have contributed to the field by paving the way for learning paradigms to solve real-world problems

D. Andina

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