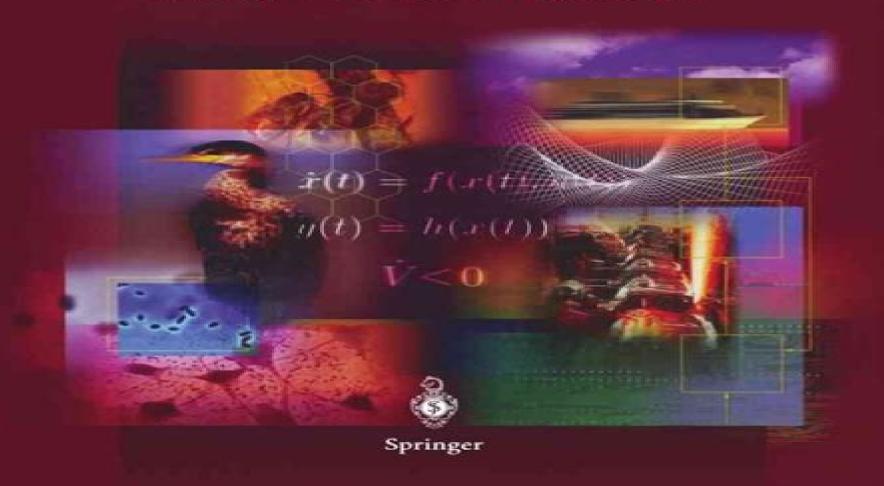
Kevin M. Passino

Biomimicry for Optimization, Control, and Automation



Biomimicry For Optimization Control And Automation

Hiram Eredín Ponce Espinosa

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practice of observing then mimicking nature s strategies to solve business challenges offers a path to healthy profit while working in partnership and even reciprocity with the natural world Other books have described biomimicry its uses and its benefits This book is the first to show readers how they can successfully bring biomimicry and bioinspired design into their companies based on what other businesses have already achieved Fashioned through storytelling this book blends snapshots of five successful companies Nike Interface Inc PAX Scientific Sharklet Technologies and Encycle which decided to partner with nature by deploying biomimicry The book details how they discovered the practices introduced them to staff engaged in the process and measured outcomes The book concludes with challenges for readers to determine their own next steps in business and offers practical and useful resources to get there By revealing the stories of each professional s journey with lessons they learned then providing resources and issuing a challenge and pathway to do business better this book serves as a tool for entrepreneurs seasoned professionals and students to emulate nature s brilliance apply it at work and contribute to a healthier more prosperous world Biomimicry and Sustainable Building Performance Olusegun Aanuoluwapo Oguntona, Clinton Ohis Aigbavboa, 2024-02-01 This book on biomimicry assessment tools studies the concepts of sustainability sustainable construction practices and the evaluation categories that constitute a sustainability assessment tool By exploring and drawing lessons from biomimicry principles the book provides a nature inspired assessment tool to aid and guide the sustainable transformation of the built environment The book encapsulates the attributes of the conceptualised biomimicry assessment tool which is aimed at helping practitioners regulatory bodies and governmental and non governmental agencies in greening the built environment Owing to the dire need for country specific and tailor made tools that address developing countries needs this book serves as a practical reference and theoretical springboard for the development of sustainability assessment tools for the built environment Furthermore the book serves as a guide in navigating the path towards achieving the greening agendas of the built environment and other sectors and seeks to align the new biomimicry assessment tool with the UN Sustainable Development Goals SDGs It is important reading for academics professionals and advanced students in the built environment engineering and sustainable development Mobile Robots for Dynamic Environments Marco Ceccarelli, Emin Faruk Kececi, 2015-06-09 For several decades now mobile robots have been integral to the development of new robotic systems for new applications even in nontechnical areas Mobile robots have already been developed for such uses as industrial automation medical care space exploration demining operations surveillance entertainment museum guides and many other industrial and non industrial applications In some cases these products are readily available on the market A considerable amount of literature is also available not all of which pertains to technical issues as listed in the chapters of this book and its companion Readers will enjoy this book and its companion They will utilize the knowledge gained with satisfaction and will be assisted by its content in their interdisciplinary work for engineering developments of mobile robots in both old and new applications. This book and its companion can be used as a

graduate level course book or a guide book for the practicing engineer who is working on a specific problem which is described in one of the chapters The companion volume for this book Designs and Prototypes of Mobile Robots is also available from Momentum Press Swarm Stability and Optimization Veysel Gazi, Kevin M. Passino, 2011-02-01 Swarming species such as flocks of birds or schools of fish exhibit fascinating collective behaviors during migration and predator avoidance Similarly engineered multi agent dynamic systems such as groups of autonomous ground underwater or air vehicles vehicle swarms exhibit sophisticated collective behaviors while maneuvering In this book we show how to model and control a wide range of such multi agent dynamic systems and analyze their collective behavior using both stability theoretic and simulation based approaches In particular we investigate problems such as group aggregation social foraging formation control swarm tracking distributed agreement and engineering optimization inspired by swarm behavior

<u>Springer Handbook of Automation</u> Shimon Y. Nof,2023-06-16 This handbook incorporates new developments in automation It also presents a widespread and well structured conglomeration of new emerging application areas such as medical systems and health transportation security and maintenance service construction and retail as well as production or logistics The handbook is not only an ideal resource for automation experts but also for people new to this expanding field

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