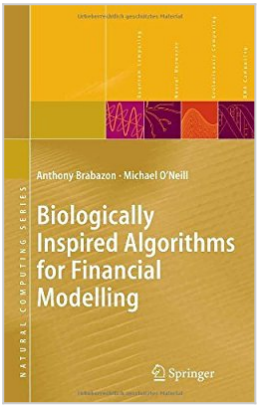

Biologically Inspired Algorithms for Financial Modelling (Natural Computing Series)

By Anthony Brabazon, Michael O'Neill

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Predicting the future for financial gain is a difficult, sometimes profitable activity. The focus of this book is the application of biologically inspired algorithms (BIAs) to financial modelling.
In a detailed introduction, the authors explain computer trading on financial markets and the difficulties faced in financial market modelling. Then Part I provides a thorough guide to the various bioinspired methodologies – neural networks, evolutionary computing (particularly genetic algorithms and grammatical evolution), particle swarm and ant colony optimization, and immune systems. Part II brings the reader through the development of market trading systems. Finally, Part III examines real-world case studies where BIA methodologies are employed to construct trading systems in equity and foreign exchange markets, and for the prediction of corporate bond ratings and corporate failures.
The book was written for those in the finance community who want to apply BIAs in financial modelling, and for computer scientists who want an introduction to this growing application domain.

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Editorial Review

Review

From the reviews:

"Anthony Brabazon and Michael O’Neill … have just published an interesting book that introduces a wide range of biologically inspired algorithms and their applications in financial modelling. … This book is a well-written, easy to read, brief introduction to the state-of-the-art biologically inspired algorithms." (Mak Kaboudan, Genetic Programming and Evolvable Machines, Vol. 7, 2006)

“The objective of this book is to provide an introduction to biologically inspired algorithms and some tightly scoped practical examples in finance. … provides some new insights and alternative tools for the financial modelling toolbox. … The goal and objective of the book is to provide practical examples using these evolutionary algorithms and it does that decently … . Overall I found the book very enlightening … and it has provided ideas and alternative ways to think about solutions.” (Brad G. Kyer, SIGACT News, Vol. 40 (4), 2009)

About the Author
Anthony Brabazon [B. Comm (UCD), DPA (UCD), Dip Stats (Dub), MS (Statistics) (Stanford), MS (Operations Research) (Stanford), MBA (Heriot-Watt), DBA (Kingston), FCA, ACMA] lectures at University College Dublin. His research interests include mathematical decision models, evolutionary computation, and the application of computational intelligence to the domain of finance. He has published in excess of 100 papers in journals, conferences and professional publications, and has been a member of the programme committee at both EuroGP and GECCO conferences, as well as acting as reviewer for several journals. He has also acted as consultant to a wide range of public and private companies in several countries. He currently serves as a member of the CCAB (Ireland) Consultative Committee on Accounting Standards, and is a former Secretary and Treasurer of the Irish Accounting and Finance Association. Prior to joining UCD, he worked in the banking sector, and for KPMG.Michael O'Neill [BSc. (UCD), PhD (UL)] is a lecturer in the Department of Computer Science and Information Systems at the University of Limerick. He has over 70 publications on biologically inspired algorithms (BIAs). He coauthored the Springer title "Grammatical Evolution -- Evolutionary Automatic Programming in an Arbitrary Language", Genetic Programming Series, 2003, 160 pp., ISBN 1-4020-7444-1. He is one of the two original developers of the Grammatical Evolution algorithm, research that spawned an annual invited tutorial at the largest evolutionary computation conference and an international workshop, and is also on a number of relevant organising committees (e.g., GECCO 2005). Michael is a regular reviewer for the leading evolutionary computation (EC) journals, namely IEEE Trans. on Evolutionary Computation, MIT Press's Evolutionary Computation, and Springer's Genetic Programming and Evolvable Hardware journal.

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