

1. Record Nr.	NYU005077071
Autore	[Sher, Gene I.]
Titolo	Handbook of neuroevolution through Erlang / Gene I. Sher
Pubbl/distr/stampa	New York, NY : Springer, ©2013
ISBN	9781461444633 1461444632 1461444624 9781461444626
Descrizione fisica	1 online resource
Classificazione	54.10 54.72
Disciplina	570.285
Collocazione	Electronic access
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Part 1. FOUNDATIONS -- Introduction to Neural Networks -- Introduction to Evolutionary Computation -- Introduction to Neuroevolutionary Methods -- The Unintentional Neural Network Programming Language -- Introduction: Applications & Motivations -- Part 2. NEUROEVOLUTION: TAKING THE FIRST STEP -- Developing a Feed Forward Neural Network -- Adding the "Stochastic Hill-Climber" Learning Algorithm -- Developing a Simple Neuroevolutionary Platform -- Testing the Neuroevolutionary System -- Part 3. A Case Study -- DXNN: A Case Study -- Part 4. Advanced Neuroevolution: Creating the Cutting Edge -- Decoupling & Modularizing Our Neuroevolutionary Platform -- Keeping Track of Important Population and Evolutionary Stats -- The Benchmark -- Creating the Two Slightly More Complex Benchmarks -- Neural Plasticity -- Substrate Encoding -- Substrate Plasticity -- Part 5. Applications -- Artificial Life -- Evolving Currency Trading Agents -- Part 6. Promises Kept -- Conclusion.
Sommario/riassunto	Handbook of Neuroevolution Through Erlang presents both the theory behind, and the methodology of, developing a neuroevolutionary-based computational intelligence system using Erlang. With a foreword written by Joe Armstrong, this handbook offers an extensive tutorial for creating a state of the art Topology and Weight Evolving Artificial

Neural Network (TWEANN) platform. In a step-by-step format, the reader is guided from a single simulated neuron to a complete system. By following these steps, the reader will be able to use novel technology to build a TWEANN system, which can be applied to Artificial Life simulation, and Forex trading. Because of Erlang's architecture, it perfectly matches that of evolutionary and neurocomputational systems. As a programming language, it is a concurrent, message passing paradigm which allows the developers to make full use of the multi-core & multi-cpu systems. Handbook of Neuroevolution Through Erlang explains how to leverage Erlang's features in the field of machine learning, and the system's real world applications, ranging from algorithmic financial trading to artificial life and robotics.
