Record Nr. UNINA9910784045803321 Recent advances in artificial life [[electronic resource]]: Sydney, **Titolo** Australia, 5-8 December 2005 / / editors, H.A. Abbass, T. Bossomaier, J. Wiles New Jersey;; London,: World Scientific, 2005 Pubbl/distr/stampa **ISBN** 1-281-37274-9 9786611372743 981-270-149-4 Descrizione fisica 1 online resource (409 p.) Collana Advances in natural computation; ; v. 3 Altri autori (Persone) AbbassHussein A BossomaierTerry R. J (Terry Richard John) WilesJanet Disciplina 570.117 Soggetti Artificial life - Mathematical models Artificial life - Simulation methods Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographic references and index. Nota di contenuto Preface; Contents; 1. Recreating Large-Scale Evolutionary Phenomena P.-M. Agapow; 2 . Neural Evolution for Collision Detection & Resolution in a 2D Free Flight Environment S. Alam. M. McPartland. M. Barlow. P. Lindsay, and H. A. Abbass; 3. Cooperative Coevolution of Genotype-Phenotype Mappings to Solve Epistatic Optimization Problems L.T. Bui. H. A. Abbass, and D. Essam; 4. Approaching Perfect Mixing in a Simple Model of the Spread of an Infectious Disease D. Chu and J. Rowe 5. The Formation of Hierarchical Structures in a Pseudo-Spatial Co-Evolutionary Artificial Life Environment D. Cornforth. D. G. Green and J. Awburn6. Perturbation Analysis: A Complex Systems Pattern N. Geard, K. Willadsen and J. Wiles; 7. A Simple Genetic Algorithm for Studies of Mendelian Populations C. Gondro and J.C.M. Magalhaes; 8. Roles of Rule-Priority Evolution in Animat Models K.A. Hawick, H.A. James and C.J. Scogings: 9. Gauging ALife: Emerging Complex Systems K. Kitto

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Sommario/riassunto

Artificial life is now a recognized discipline of research with many important applications and software tools. However, many theoretical issues remain unresolved. This book brings together a cross-section of key developments in artificial life, which in turn gives us new insight into the theory of complex systems. The central ideas of the book surround genetics and evolution in an artificial life framework. Topics covered include maintenance of genetic diversity, hierarchical structures and stability of ecosystems. Underpinning these topics are key theoretical developments surrounding network