Tzai-Der Wang Xiaodong Li
Shu-Heng Chen Xufa Wang
Hussein Abbass Hitoshi Iba
Guoliang Chen Xin Yao (Eds.)

LNCS 4247

Simulated Evolution and Learning

6th International Conference, SEAL 2006
Hefei, China, October 2006
Proceedings

Springer

Tzai-Der Wang Xiaodong Li
Shu-Heng Chen Xufa Wang
Hussein Abbass Hitoshi Iba
Guoliang Chen Xin Yao (Eds.)

Simulated Evolution and Learning

6th International Conference, SEAL 2006
Hefei, China, October 15-18, 2006
Proceedings

Volume Editors

Tzai-Der Wang
Cheng Shiu University, Taiwan, E-mail: dougwang@csu.edu.tw

Xiaodong Li
RMIT University, Australia, E-mail: xiaodong@cs.rmit.edu.au

Shu-Heng Chen
AI-ECON Research Center, Taiwan, E-mail: chchen@nccu.edu.tw

Xufa Wang
University of Science and Technology of China, E-mail: xfwang@ustc.edu.cn

Hussein Abbass
University of New South Wales, Australia, E-mail: abbass@itee.adfa.edu.au

Hitoshi Iba
University of Tokyo, Japan, E-mail: iba@iba.k.u-tokyo.ac.jp

Guoliang Chen
University of Science and Technology of China, E-mail: glchen@ustc.edu.cn

Xin Yao
University of Birmingham, UK, E-mail: x.yao@cs.bham.ac.uk

Library of Congress Control Number: 2006933999

CR Subject Classification (1998): F.1.1, I.2.6, I.6, G.1.6, D.2.2, J.3-4

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

ISSN 0302-9743
ISBN-10 3-540-47331-9 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-47331-2 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springer.com

© Springer-Verlag Berlin Heidelberg 2006
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 11903697 06/3142 5 4 3 2 1 0

Lecture Notes in Computer Science 4247

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison
Lancaster University, UK

Takeo Kanade
Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler
University of Surrey, Guildford, UK

Jon M. Kleinberg
Cornell University, Ithaca, NY, USA

Friedemann Mattern
ETH Zurich, Switzerland

John C. Mitchell
Stanford University, CA, USA

Moni Naor
Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz
University of Bern, Switzerland

C. Pandu Rangan
Indian Institute of Technology, Madras, India

Bernhard Steffen
University of Dortmund, Germany

Madhu Sudan
Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos
University of California, Los Angeles, CA, USA

Doug Tygar
University of California, Berkeley, CA, USA

Moshe Y. Vardi
Rice University, Houston, TX, USA

Gerhard Weikum
Max-Planck Institute of Computer Science, Saarbruecken, Germany

Preface

We are very delighted to present this LNCS volume, the proceedings of the Sixth International Conference on Simulated Evolution And Learning (SEAL 2006). SEAL is a prestigious international conference series in evolutionary computation and learning. This biennial event was first held in Seoul, Korea, in 1996, and then in Canberra, Australia (1998), Nagoya, Japan (2000), Singapore (2002), and Busan, Korea (2004).

SEAL 2006 received a record 420 paper submissions this year. After an extensive peer review process involving more than 1100 reviews, the best 117 papers were selected by the programme committee to be presented at the conference and included in this volume, resulting in an acceptance rate of less than 30%.

The papers included in this volume cover a wide range of topics in simulated evolution and learning: from evolutionary learning to evolutionary optimisation, from hybrid systems to adaptive systems, from theoretical issues to real-world applications. They represent some of the latest and best research in simulated evolution and learning in the world.

The conference featured four distinguished keynote speakers: Karl Sigmund, Zbigniew Michalewicz, Han La Poutré and Gary Yen. Karl Sigmund's talk was on "The Evolution of Cooperation in Groups." Zbigniew Michalewicz's talk was on "Adaptive Business Intelligence." Han La Poutré's talk was on "Learning Agents in Socio-economic Games." Gary G. Yen's talk was on "Adaptive Critics for Fault Tolerant Control". We were very fortunate to have such distinguished speakers giving talks at SEAL 2006 despite their busy schedules. Their presence at the conference was yet another indicator of the importance of SEAL on the international research map.

SEAL 2006 also included five tutorials, which were free to all conference participants. The five tutorials covered some of the hottest topics in evolutionary computation and its applications, i.e., Evolutionary Multiobjective Optimization and its Applications (Gary Yen), Evolutionary Computation for Real-World Problems (Zbigniew Michalewicz), Automatic Decomposition in Evolutionary Computation for Optimization and Learning (Hussein Abbass), Particle Swarm Optimization (Xiaodong Li) and Recent Advances in Real Parameter Optimization (P.N. Suganthan). They provided an excellent start to the four-day event.

Furthermore, Jim Kennedy, a pioneer in particle swarm optimisation, also gave a brilliant plenary speech at SEAL 2006.

The success of a conference depends on its authors, reviewers and organisers. SEAL 2006 was no exception. We were very grateful to all the authors for their paper submissions and to all the reviewers for their outstanding work in refereeing the papers within a very tight schedule. We relied heavily upon a team of volunteers to keep the SEAL 2006 wheel turning. They were true heros working behind the scene. In particular, Wenjian Luo from USTC in Hefei, China,

此为试读,需要完整PDF请访问: www.ertongbook.com

played a crucial role in organising the conference. We are most grateful to all the volunteers for their great efforts and contributions.

August 2006

Xin Yao
Tzai-Der Wang
Xiaodong Li

Organisation

The Sixth International Conference on Simulated Evolution And Learning (SEAL 2006) was organised and hosted by the University of Science and Technology of China, Hefei, China.

SEAL 2006 Conference Committee

General Chair	Guo-Liang Chen (China)
Programme Chairs	Xin Yao (UK) Xufa Wang (China)
Technical Co-chairs	Shu-Heng Chen (Taiwan) Tzai-Der Wang (Taiwan) Hussein Abbass (Australia) Hitoshi Iba (Japan) Zengqi Sun (China) Bob McKay (South Korea)
Tutorials and Special Sessions Chair	Xiaodong Li (Australia)
Organising Committee Co-chairs	Xufa Wang (China) Liusheng Huang (China) Naijie Gu (China)
Organising Committee Members	Haoran Zheng, Xianbin Cao, Enhong Chen, Houning Wang, Bin Li, Wenjian Luo, Jinlong Li, Shangfei Wang, Jianhui Ma, Sihai Zhang, Kaiming Chen, Hai Qian

SEAL 2006 Steering Committee

Takeshi Furuhashi	Japan
Jong-Hwan Kim	South Korea
Bob McKay	South Korea
Xin Yao	UK

SEAL 2006 Tutorials

Evolutionary Multiobjective Optimization and Its Applications
Gary G. Yen

Evolutionary Computation for Real-World Problems
Zbigniew Michalewicz

Automatic Decomposition in Evolutionary Computation for Optimization and Learning
Hussein Abbass

Particle Swarm Optimization
Xiaodong Li

Recent Advances in Real Parameter Optimization
P.N. Suganthan

SEAL 2006 Programme Committee

Abbass, Hussein
Alam, Sameer
Bonabeau, Eric
Bui, Lam Thu
Cao, Wenming
Chandra, Arjun
Chen, Enhong
Chen, Guoqing
Chen, Shu-Heng
Chen, Shyi-Ming
Cheng, Xiaochun
Cho, Sung-Bae
Chong, Siang Yew
Chu, Chao-Hsien
Chuang, Shang-Jen
Coello, Carlos A. Coello
Dam, Helen
Darwen, Paul
de Carvalho, André
Engelbrecht, AP
Fyfe, Colin
Gallegati, Mauro
Gao, Jun
Handa, Hisashi
He, Jun
Heymann, Daniel
Hiot, Lim-Meng
Hiroshi, Furutani
Iba, Hitoshi
Ishibuchi, Hisao
Izumi, Kiyoshi
Jain, Lakhmi
Jiao, Licheng
Jin, Yaochu
Jo, Jun
Kahraman, Cengiz
Kaizoji, Taisei
Kendall, Graham
Klos, Tomas
Kubota, Naoyuki
Laing, Yiwen
Lajbcygier, Paul
Lee, JangMyung
Lee, Yuh-Jye
Leung, Kwong-Sak
Li, Bin
Li, Jin
Li, Tong
Li, Xiaodong
Lin, Ping-Chen
Luo, Wenjian
McKay, Bob
McMullan, Paul
Michalewicz, Zbigniew
Miyamoto, Sadaaki
Mo, Hongwei
Nakao, Zensho
Navet, Nicolas
Nishizaki, Ichiro
North, Michael
Ohkura, Kazuhiro
Pei, Jihong
Pichl, Lukas
Riechmann, Thomas
Sasaki, Yuya
Sato, Yuji
Schnier, Thorsten
Shi, Zhongzhi
Soon, Ong Yew
Suganthan, Ponnuthurai Nagaratnam
Sun, Jianyong
Sun, Zengqi
Sun, Zhaohao
Szeto, Kwokyip

Takadama, Keiki
Tan, Kay Chen
Tang, Maolin
Terano, Takao
Tohme, Fernando
Tsaih, Rua-huan
Tsao, Chueh-Yung
Tseng, Chiu-Che
Velez-Langs, Oswaldo
Verma, Brijesh
Vila, Xavier
Vriend, Nicholas J.
Wang, Binghong
Wang, Han
Wang, Lipo
Wang, Shinn-Wen
Wang, Tzai-Der
Wang, Xufa
Wang, Zengfu
Westerhoff, Frank
Whigham, Peter
Xu, Yong
Xue, Weimin
Yang, Shengxiang
Yao, Xin
Yen, Gary
Yu, Xinghuo
Zhang, Byoung-Tak
Zhang, Ling
Zhao, Mingsheng
Zhao, Qiangfu
Zheng, Zijian
Zhou, Zhihua

Sponsoring Institutions

National Natural Science Foundation of China

Chinese Academy of Sciences

Anhui Computer Federation

University of Science and Technology of China

The Centre of Excellence for Research in Computational Intelligence and Applications (Cercia), The University of Birmingham, UK

Anhui Province Key Laboratory for Computing and Communication Software Engineering

Lecture Notes in Computer Science

For information about Vols. 1–4164

please contact your bookseller or Springer

Vol. 4270: H. Zha, Z. Pan, H. Thwaites, A.C. Addison, M. Forte (Eds.), Interactive Technologies and Sociotechnical Systems. XVI, 547 pages. 2006.

Vol. 4265: N. Lavrač, L. Todorovski, K.P. Jantke (Eds.), Discovery Science. XIV, 384 pages. 2006. (Sublibrary LNAI).

Vol. 4264: J.L. Balcázar, P.M. Long, F. Stephan (Eds.), Algorithmic Learning Theory. XIII, 393 pages. 2006. (Sublibrary LNAI).

Vol. 4253: B. Gabrys, R.J. Howlett, L.C. Jain (Eds.), Knowledge-Based Intelligent Information and Engineering Systems, Part III. XXXII, 1301 pages. 2006. (Sublibrary LNAI).

Vol. 4252: B. Gabrys, R.J. Howlett, L.C. Jain (Eds.), Knowledge-Based Intelligent Information and Engineering Systems, Part II. XXXIII, 1335 pages. 2006. (Sublibrary LNAI).

Vol. 4251: B. Gabrys, R.J. Howlett, L.C. Jain (Eds.), Knowledge-Based Intelligent Information and Engineering Systems, Part I. LXVI, 1297 pages. 2006. (Sublibrary LNAI).

Vol. 4249: L. Goubin, M. Matsui (Eds.), Cryptographic Hardware and Embedded Systems - CHES 2006. XII, 462 pages. 2006.

Vol. 4248: S. Staab, V. Svátek (Eds.), Engineering Knowledge in the Age of the Semantic Web. XIV, 400 pages. 2006. (Sublibrary LNAI).

Vol. 4247: T.-D. Wang, X. Li, S.-H. Chen, X. Wang, H. Abbass, H. Iba, G. Chen, X. Yao (Eds.), Simulated Evolution and Learning. XXI, 940 pages. 2006.

Vol. 4243: T. Yakhno, E.J. Neuhold (Eds.), Advances in Information Systems. XIII, 420 pages. 2006.

Vol. 4241: R.R. Beichel, M. Sonka (Eds.), Computer Vision Approaches to Medical Image Analysis. XI, 262 pages. 2006.

Vol. 4239: H.Y. Youn, M. Kim, H. Morikawa (Eds.), Ubiquitous Computing Systems. XVI, 548 pages. 2006.

Vol. 4238: Y.-T. Kim, M. Takano (Eds.), Management of Convergence Networks and Services. XVIII, 605 pages. 2006.

Vol. 4236: L. Breveglieri, I. Koren, D. Naccache, J.-P. Seifert (Eds.), Fault Diagnosis and Tolerance in Cryptography. XIII, 253 pages. 2006.

Vol. 4234: I. King, J. Wang, L. Chan, D. Wang (Eds.), Neural Information Processing, Part III. XXII, 1227 pages. 2006.

Vol. 4233: I. King, J. Wang, L. Chan, D. Wang (Eds.), Neural Information Processing, Part II. XXII, 1203 pages. 2006.

Vol. 4232: I. King, J. Wang, L. Chan, D. Wang (Eds.), Neural Information Processing, Part I. XLVI, 1153 pages. 2006.

Vol. 4229: E. Najm, J.F. Pradat-Peyre, V.V. Donzeau-Gouge (Eds.), Formal Techniques for Networked and Distributed Systems - FORTE 2006. X, 486 pages. 2006.

Vol. 4228: D.E. Lightfoot, C.A. Szyperski (Eds.), Modular Programming Languages. X, 415 pages. 2006.

Vol. 4227: W. Nejdl, K. Tochtermann (Eds.), Innovative Approaches for Learning and Knowledge Sharing. XVII, 721 pages. 2006.

Vol. 4225: J.F. Martínez-Trinidad, J.A. Carrasco Ochoa, J. Kittler (Eds.), Progress in Pattern Recognition, Image Analysis and Applications. XIX, 995 pages. 2006.

Vol. 4224: E. Corchado, H. Yin, V. Botti, C. Fyfe (Eds.), Intelligent Data Engineering and Automated Learning – IDEAL 2006. XXVII, 1447 pages. 2006.

Vol. 4223: L. Wang, L. Jiao, G. Shi, X. Li, J. Liu (Eds.), Fuzzy Systems and Knowledge Discovery. XXVIII, 1335 pages. 2006. (Sublibrary LNAI).

Vol. 4222: L. Jiao, L. Wang, X. Gao, J. Liu, F. Wu (Eds.), Advances in Natural Computation, Part II. XLII, 998 pages. 2006.

Vol. 4221: L. Jiao, L. Wang, X. Gao, J. Liu, F. Wu (Eds.), Advances in Natural Computation, Part I. XLI, 992 pages. 2006.

Vol. 4219: D. Zamboni, C. Kruegel (Eds.), Recent Advances in Intrusion Detection. XII, 331 pages. 2006.

Vol. 4218: S. Graf, W. Zhang (Eds.), Automated Technology for Verification and Analysis. XIV, 540 pages. 2006.

Vol. 4217: P. Cuenca, L. Orozco-Barbosa (Eds.), Personal Wireless Communications. XV, 532 pages. 2006.

Vol. 4216: M.R. Berthold, R. Glen, I. Fischer (Eds.), Computational Life Sciences II. XIII, 269 pages. 2006. (Sublibrary LNBI).

Vol. 4213: J. Fürnkranz, T. Scheffer, M. Spiliopoulou (Eds.), Knowledge Discovery in Databases: PKDD 2006. XXII, 660 pages. 2006. (Sublibrary LNAI).

Vol. 4212: J. Fürnkranz, T. Scheffer, M. Spiliopoulou (Eds.), Machine Learning: ECML 2006. XXIII, 851 pages. 2006. (Sublibrary LNAI).

Vol. 4211: P. Vogt, Y. Sugita, E. Tuci, C. Nehaniv (Eds.), Symbol Grounding and Beyond. VIII, 237 pages. 2006. (Sublibrary LNAI).

Vol. 4210: C. Priami (Ed.), Computational Methods in Systems Biology. X, 323 pages. 2006. (Sublibrary LNBI).

Vol. 4209: F. Crestani, P. Ferragina, M. Sanderson (Eds.), String Processing and Information Retrieval. XIV, 367 pages. 2006.

Vol. 4208: M. Gerndt, D. Kranzlmüller (Eds.), High Performance Computing and Communications. XXII, 938 pages. 2006.

Vol. 4207: Z. Ésik (Ed.), Computer Science Logic. XII, 627 pages. 2006.

Vol. 4206: P. Dourish, A. Friday (Eds.), UbiComp 2006: Ubiquitous Computing. XIX, 526 pages. 2006.

Vol. 4205: G. Bourque, N. El-Mabrouk (Eds.), Comparative Genomics. X, 231 pages. 2006. (Sublibrary LNBI).

Vol. 4204: F. Benhamou (Ed.), Principles and Practice of Constraint Programming - CP 2006. XVIII, 774 pages. 2006.

Vol. 4203: F. Esposito, Z.W. Raś, D. Malerba, G. Semeraro (Eds.), Foundations of Intelligent Systems. XVIII, 767 pages. 2006. (Sublibrary LNAI).

Vol. 4202: E. Asarin, P. Bouyer (Eds.), Formal Modeling and Analysis of Timed Systems. XI, 369 pages. 2006.

Vol. 4201: Y. Sakakibara, S. Kobayashi, K. Sato, T. Nishino, E. Tomita (Eds.), Grammatical Inference: Algorithms and Applications. XII, 359 pages. 2006. (Sublibrary LNAI).

Vol. 4199: O. Nierstrasz, J. Whittle, D. Harel, G. Reggio (Eds.), Model Driven Engineering Languages and Systems. XVI, 798 pages. 2006.

Vol. 4198: O. Nasraoui, O. Zaiane, M. Spiliopoulou, B. Mobasher, B. Masand, P. Yu (Eds.), Advances in Web Minding and Web Usage Analysis. IX, 177 pages. 2006. (Sublibrary LNAI).

Vol. 4197: M. Raubal, H.J. Miller, A.U. Frank, M.F. Goodchild (Eds.), Geographic, Information Science. XIII, 419 pages. 2006.

Vol. 4196: K. Fischer, I.J. Timm, E. André, N. Zhong (Eds.), Multiagent System Technologies. X, 185 pages. 2006. (Sublibrary LNAI).

Vol. 4195: D. Gaiti, G. Pujolle, E. Al-Shaer, K. Calvert, S. Dobson, G. Leduc, O. Martikainen (Eds.), Autonomic Networking. IX, 316 pages. 2006.

Vol. 4194: V.G. Ganzha, E.W. Mayr, E.V. Vorozhtsov (Eds.), Computer Algebra in Scientific Computing. XI, 313 pages. 2006.

Vol. 4193: T.P. Runarsson, H.-G. Beyer, E. Burke, J.J. Merelo-Guervós, L. D. Whitley, X. Yao (Eds.), Parallel Problem Solving from Nature - PPSN IX. XIX, 1061 pages. 2006.

Vol. 4192: B. Mohr, J.L. Träff, J. Worringen, J. Dongarra (Eds.), Recent Advances in Parallel Virtual Machine and Message Passing Interface. XVI, 414 pages. 2006.

Vol. 4191: R. Larsen, M. Nielsen, J. Sporring (Eds.), Medical Image Computing and Computer-Assisted Intervention – MICCAI 2006, Part II. XXXVIII, 981 pages. 2006.

Vol. 4190: R. Larsen, M. Nielsen, J. Sporring (Eds.), Medical Image Computing and Computer-Assisted Intervention – MICCAI 2006, Part I. XXXVVIII, 949 pages. 2006.

Vol. 4189: D. Gollmann, J. Meier, A. Sabelfeld (Eds.), Computer Security – ESORICS 2006. XI, 548 pages. 2006.

Vol. 4188: P. Sojka, I. Kopeček, K. Pala (Eds.), Text, Speech and Dialogue. XIV, 721 pages. 2006. (Sublibrary LNAI).

Vol. 4187: J.J. Alferes, J. Bailey, W. May, U. Schwertel (Eds.), Principles and Practice of Semantic Web Reasoning. XI, 277 pages. 2006.

Vol. 4186: C. Jesshope, C. Egan (Eds.), Advances in Computer Systems Architecture. XIV, 605 pages. 2006.

Vol. 4185: R. Mizoguchi, Z. Shi, F. Giunchiglia (Eds.), The Semantic Web – ASWC 2006. XX, 778 pages. 2006.

Vol. 4184: M. Bravetti, M. Núñez, G. Zavattaro (Eds.), Web Services and Formal Methods. X, 289 pages. 2006.

Vol. 4183: J. Euzenat, J. Domingue (Eds.), Artificial Intelligence: Methodology, Systems, and Applications. XIII, 291 pages. 2006. (Sublibrary LNAI).

Vol. 4182: H.T. Ng, M.-K. Leong, M.-Y. Kan, D. Ji (Eds.), Information Retrieval Technology. XVI, 684 pages. 2006.

Vol. 4180: M. Kohlhase, OMDoc – An Open Markup Format for Mathematical Documents [version 1.2]. XIX, 428 pages. 2006. (Sublibrary LNAI).

Vol. 4179: J. Blanc-Talon, W. Philips, D. Popescu, P. Scheunders (Eds.), Advanced Concepts for Intelligent Vision Systems. XXIV, 1224 pages. 2006.

Vol. 4178: A. Corradini, H. Ehrig, U. Montanari, L. Ribeiro, G. Rozenberg (Eds.), Graph Transformations. XII, 473 pages. 2006.

Vol. 4177: R. Marín, E. Onaindía, A. Bugarín, J. Santos (Eds.), Current Topics in Artificial Intelligence. XV, 482 pages. 2006. (Sublibrary LNAI).

Vol. 4176: S.K. Katsikas, J. Lopez, M. Backes, S. Gritzalis, B. Preneel (Eds.), Information Security. XIV, 548 pages. 2006.

Vol. 4175: P. Bücher, B.M.E. Moret (Eds.), Algorithms in Bioinformatics. XII, 402 pages. 2006. (Sublibrary LNBI).

Vol. 4174: K. Franke, K.-R. Müller, B. Nickolay, R. Schäfer (Eds.), Pattern Recognition. XX, 773 pages. 2006.

Vol. 4173: S. El Yacoubi, B. Chopard, S. Bandini (Eds.), Cellular Automata. XV, 734 pages. 2006.

Vol. 4172: J. Gonzalo, C. Thanos, M. F. Verdejo, R.C. Carrasco (Eds.), Research and Advanced Technology for Digital Libraries. XVII, 569 pages. 2006.

Vol. 4169: H.L. Bodlaender, M.A. Langston (Eds.), Parameterized and Exact Computation. XI, 279 pages. 2006.

Vol. 4168: Y. Azar, T. Erlebach (Eds.), Algorithms – ESA 2006. XVIII, 843 pages. 2006.

Vol. 4167: S. Dolev (Ed.), Distributed Computing. XV, 576 pages. 2006.

Vol. 4166: J. Górski (Ed.), Computer Safety, Reliability, and Security. XIV, 440 pages. 2006.

Vol. 4165: W. Jonker, M. Petković (Eds.), Secure, Data Management. X, 185 pages. 2006.

此为试读,需要完整PDF请访问: www.ertongbook.com

Table of Contents

Evolutionary Learning

Evolutionary Dynamics on Graphs: The Moran Process 1
Peter A. Whigham, Grant Dick

Generalized Embedded Landscape and Its Decomposed Representation 9
Shude Zhou, Robert B. Heckendorn, Zengqi Sun

Representative Selection for Cooperative Co-evolutionary Genetic Algorithms 18
Xiao-yan Sun, Dun-wei Gong, Guo-sheng Hao

Kernel Matching Pursuit Based on Immune Clonal Algorithm for Image Recognition 26
Shuiping Gou, Licheng Jiao, Yangyang Li, Qing Li

Power Quality Disturbance Detection and Classification Using Chirplet Transforms 34
Guo-Sheng Hu, Feng-Feng Zhu, Yong-Jun Tu

Ensemble Learning Classifier System and Compact Ruleset 42
Yang Gao, Lei Wu, Joshua Zhexue Huang

The Role of Early Stopping and Population Size in XCS for Intrusion Detection 50
Kamran Shafi, Hussein A. Abbass, Weiping Zhu

Improving Radial Basis Function Networks for Human Face Recognition Using a Soft Computing Approach 58
Wanida Pensuwon, Rod Adams, Neil Davey, Wiroj Taweepworadej

Solving Traveling Salesman Problems by Artificial Immune Response 64
Maoguo Gong, Licheng Jiao, Lining Zhang

A Strategy of Mutation History Learning in Immune Clonal Selection Algorithm 72
Yutao Qi, Xiaoying Pan, Fang Liu, Licheng Jiao

Quantum-Inspired Immune Clonal Algorithm for Multiuser Detection in DS-CDMA Systems 80
Yangyang Li, Licheng Jiao, Shuiping Gou

Innate and Adaptive Principles for an Artificial Immune System 88
M. Middlemiss, Peter A. Whigham

Immune-Based Dynamic Intrusion Response Model 96
SunJun Liu, Tao Li, Kui Zhao, Jin Yang, Xun Gong, JianHua Zhang

Immune Multi-agent Active Defense Model for Network Intrusion 104
SunJun Liu, Tao Li, DianGang Wang, Kui Zhao, Xun Gong, XiaoQing Hu, Chun Xu, Gang Liang

An Immune Mobile Agent Based Grid Intrusion Detection Model 112
Xun Gong, Tao Li, Tiefang Wang, Jin Yang, Sunjun Liu, Gang Liang

Solving Optimization Problem Using Multi-agent Model Based on Belief Interaction 120
Dongwei Guo, Yanbin Liu, Na Zhang, Kangping Wang

Continuous Function Optimization Using Hybrid Ant Colony Approach with Orthogonal Design Scheme 126
Jun Zhang, Wei-neng Chen, Jing-hui Zhong, Xuan Tan, Yun Li

Niching for Dynamic Environments Using Particle Swarm Optimization 134
Isabella Schoeman, Andries Engelbrecht

A New Ant Colony Optimization Applied for the Multidimensional Knapsack Problem 142
Min Kong, Peng Tian

Numerical Optimization Using Organizational Particle Swarm Algorithm 150
Lin Cong, Yuheng Sha, Licheng Jiao

A Hybrid Discrete Particle Swarm Algorithm for Open-Shop Problems 158
Qingyun Yang, Jigui Sun, Juyang Zhang, Chunjie Wang

Particle Swarms Cooperative Optimization for Coalition Generation Problem 166
Guofu Zhang, Jianguo Jiang, Na Xia, Zhaopin Su

A Novel Multi-objective PSO Algorithm for Constrained Optimization Problems 174
Jingxuan Wei, Yuping Wang

A Hybrid Discrete Particle Swarm Optimization for the Traveling Salesman Problem 181
Xiangyong Li, Peng Tian, Jing Hua, Ning Zhong

Incremental Clustering Based on Swarm Intelligence 189
Bo Liu, Jiuhui Pan, R.I. McKay

Variable Neighborhood Particle Swarm Optimization for Multi-objective Flexible Job-Shop Scheduling Problems 197
Hongbo Liu, Ajith Abraham, Okkyung Choi, Seong Hwan Moon

Optimal Designing of Multi-channel WDM Filter Using Intelligent Particle Swarm Optimization Algorithm 205
Yumin Liu, Zhongyuan Yu

Adaptive Comprehensive Learning Particle Swarm Optimizer with History Learning 213
J.J. Liang, P.N. Suganthan

Optimal Designing of EDFA Gain Flattening Long Period Fiber Grating by Intelligent Particle Swarm Optimization Algorithm 221
Yumin Liu, Zhongyuan Yu

Evolutionary Optimisation

Research of Undirected Network Capacity Expansion Based on the Spanning-Tree 228
Yuhua Liu, Kaihua Xu, Hao Huang, Wei Teng

A New Approach to Solving Dynamic Traveling Salesman Problems 236
Changhe Li, Ming Yang, Lishan Kang

Shannon Wavelet Chaotic Neural Networks 244
Yao-qun Xu, Ming Sun, Ji-hong Shen

Deterministic Divide-and-Conquer Algorithm for Decomposable Black-Box Optimization Problems with Bounded Difficulty 252
Shude Zhou, Zengqi Sun

QPSO-Based QoS Multicast Routing Algorithm 261
Jun Sun, Jing Liu, Wenbo Xu

ANDYMARK: An Analytical Method to Establish Dynamically the Length of the Markov Chain in Simulated Annealing for the Satisfiability Problem 269
Juan Frausto-Solís, Héctor Sanvicente-Sánchez, Froilán Imperial-Valenzuela

An Accelerated Micro Genetic Algorithm for Numerical Optimization 277
Linsong Sun, Weihua Zhang

Optimal Ordering and Recovery Policy for Reusable Items with Shortages 284
H.M. Wee, Jonas C.P. Yu, Ling-Huey Su, Te-Chin Wu

A New Algorithm of Automatic Programming: GEGEP 292
Xin Du, Yueqiao Li, Datong Xie, Lishan Kang

Constrained Optimization Using Organizational Evolutionary Algorithm 302
Jing Liu, Weicai Zhong

Rotationally Invariant Crossover Operators in Evolutionary Multi-objective Optimization 310
Antony Iorio, Xiaodong Li

A Hybrid of Differential Evolution and Genetic Algorithm for Constrained Multiobjective Optimization Problems 318
Min Zhang, Huantong Geng, Wenjian Luo, Linfeng Huang, Xufa Wang

The Research on Repurchase Announcements of Open-Market Stock 328
Weimin Tang, Juanjuan Peng

Infeasible Elitists and Stochastic Ranking Selection in Constrained Evolutionary Multi-objective Optimization 336
Huantong Geng, Min Zhang, Linfeng Huang, Xufa Wang

A New Strategy for Parameter Estimation of Dynamic Differential Equations Based on NSGA II 345
Yingzi Shi, Jiangang Lu, Qiang Zheng

Vector Prediction Approach to Handle Dynamical Optimization Problems 353
Bojin Zheng, Yuanxiang Li, Ting Hu

Benchmarking Evolutionary and Hybrid Algorithms Using Randomized Self-similar Landscapes 361
Cara MacNish

Interactive Genetic Algorithms Based on Implicit Knowledge Model 369
Yi-nan Guo, Dun-wei Gong, Ding-quan Yang

An Evolutionary Fuzzy Multi-objective Approach to Cell Formation 377
Chang-Chun Tsai, Chao-Hsien Chu, Xiaodan Wu

Dual Guidance in Evolutionary Multi-objective Optimization by Localization 384
Lam T. Bui, Kalyanmoy Deb, Hussein A. Abbass, Daryl Essam

Hybridisation of Particle Swarm Optimization and Fast Evolutionary Programming 392
Jingsong He, Zhengyu Yang, Xin Yao

An Improved Particle Swarm Pareto Optimizer with Local Search and Clustering 400
Ching-Shih Tsou, Hsiao-Hua Fang, Hsu-Hwa Chang, Chia-Hung Kao

A Hybrid Genetic Algorithm for Solving a Class of Nonlinear Bilevel Programming Problems 408
Hecheng Li, Yuping Wang

A Synergistic Selection Strategy in the Genetic Algorithms 416
Kuo Ting

Priority-Based Genetic Local Search and Its Application to the Traveling Salesman Problem 424
Jyh-Da Wei, D.T. Lee

Integrated the Simplified Interpolation and Clonal Selection into the Particle Swarm Optimization for Optimization Problems 433
Jing Wang, Xiaohua Zhang, Licheng Jiao

Hybrid Model of Genetic Algorithm and Cultural Algorithms for Optimization Problem 441
Fang Gao, Hongwei Liu, Qiang Zhao, Gang Cui

Selection Enthusiasm 449
A. Agrawal, I. Mitchell

Spatially-Structured Evolutionary Algorithms and Sharing: Do They Mix? 457
Grant Dick, Peter A. Whigham

Suggested Algorithms for Blood Cell Images 465
Weixing Wang, Qi Zhao, Wang Luo

An Adaptive Multi-objective Particle Swarm Optimization for Color Image Fusion 473
Yifeng Niu, Lincheng Shen

A New Dynamic Particle Swarm Optimizer 481
Binbin Zheng, Yuanxiang Li, Xianjun Shen, Bojin Zheng

Mean-Contribution Ant System: An Improved Version of Ant Colony Optimization for Traveling Salesman Problem 489
Anzuo Liu, Guishi Deng, Shimin Shan

A Diversity-Guided Quantum-Behaved Particle Swarm Optimization Algorithm 497
Jun Sun, Wenbo Xu, Wei Fang

Multimodal Optimisation with Structured Populations and Local Environments 505
Grant Dick, Peter A. Whigham

A Time Complexity Analysis of ACO for Linear Functions 513
Zhifeng Hao, Han Huang, Xili Zhang, Kun Tu

Particle Swarm Optimization Based on Information Diffusion and Clonal Selection 521
Yanping Lv, Shaozi Li, Shuili Chen, Qingshan Jiang, Wenzhong Guo

Evolutionary Bayesian Classifier-Based Optimization in Continuous Domains 529
Teresa Miquélez, Endika Bengoetxea, Pedro Larrañaga

A Simple Ranking and Selection for Constrained Evolutionary Optimization 537
Ehab Z. Elfeky, Ruhul A. Sarker, Daryl L. Essam

Optimizing Continuous Problems Using Estimation of Distribution Algorithm Based on Histogram Model 545
Nan Ding, Shude Zhou, Zengqi Sun

此为试读,需要完整PDF请访问: www.ertongbook.com