



Research Frontier

Adaptively Allocating Search Effort in Challenging Many-Objective Optimization Problems

This paper presents a new adaptive search effort allocation strategy for multiobjective evolutionary algorithm based on decomposition MOEA/D-M2M, a recent MOEA/D algorithm for challenging MaOPs. This proposed method adaptively adjusts the subregions of its subproblems by detecting the importance of different objectives in an adaptive manner. More specifically, it periodically resets the subregion setting based on the distribution of the current solutions in the objective space such that the search effort is not wasted on unpromising regions. The basic idea is that the current population can be regarded as an approximation to the Pareto front (PF) and thus one can implicitly estimate the shape of the PF and such estimation can be used for adjusting the search focus. The performance of proposed algorithm has been verified by comparing it with eight representative and competitive algorithms on a set of degenerated MaOPs with disconnected and connected PFs. Performances of the proposed algorithm on a number of nondegenerated test instances with connected and disconnected PFs are also studied.



IEEE Transactions on Evolutionary Computation, Jun. 2018

Evolutionary Computation for Community Detection in Networks: A Review

A key feature of complex networks is the tendency of entities to group together to form communities. The detection of communities has been receiving a great deal of interest by researchers. In fact, the knowledge of how objects organize allows a better understanding of a network, and gives a deeper insight of interesting characteristics, that could not be caught if considering the network as a whole. In the last decade, evolutionary computation techniques have given a significant contribution in this context. The aim of this paper is to present the approaches based on evolutionary computation to uncover community structure. Especially, the representation schemes with the genetic operators apt for them are described, and the most popular fitness functions employed by the methods are discussed. The survey covers the most recent proposals optimizing either a single objective or multiple objectives for different types of network models, such as signed, dynamic, and multidimensional.



IEEE Transactions on Evolutionary Computation, Jun. 2018

Improving Supervised Learning Classification Methods Using Multigranular Linguistic Modeling and Fuzzy Entropy

Important Message

★ Nomination for Distinguished Lecturers

The IEEE CIS DLP committee invites all Society's Technical Committees Chairs, Chapter Chairs, EiCs, and AdCom / ExCom members to nominate Distinguished Lecturers (2019-2021). The nominations should be received by **Aug. 30**. [\(Details\)](#)

★ CIS Chapter Activity Promotion Grants

IEEE CIS has strategic plans to promote member activities through chapters and set up an activity promotion grant. Proposal submission is now open till **Oct. 31**. [\(Details\)](#)

★ Proposals to Organize IEEE SSCI in 2020

Proposals for the organization of IEEE SSCI in 2020 must be submitted as soon as possible, and no later than **Oct 15**. Please inform [Bernadette Bouchon-Meunier](#) and [Piero Bonissone](#) of your intention to prepare a bid as soon as you decide to do so. Policies, procedures and budget worksheet for such proposals are [available](#).

CIS Conferences

★ 2018 IEEE World Congress

We propose to apply linguistic modeling methods in order to obtain a linguistic representation. With the help of multigranular linguistic modeling, data can be transformed and expressed using different (unbalanced) linguistic label sets. Expressing the data using linguistic expressions instead of numbers increases the readability and reduces the complexity of the problem, and data recovering methods allow us to manually control the level of precision. In this paper, several datasets are transformed and utilized for classification tasks using several supervised learning algorithms. For each combination of datasets and algorithms, the data have been expressed using several linguistic label sets that have different granularity values. After carrying out the testing processes, we can conclude that, in some cases, reducing data complexity leads to better classification results. Therefore, it is found that linguistic representation of the training data with just the necessary and sufficient precision can improve the reliability of the classification process.



IEEE Transactions on Fuzzy Systems, Oct. 2017

5 Minutes with Prof. Nikhil R. Pal

IEEE CIS Student Activities Subcommittee invites you to get to know the pioneers and experts in the Computational Intelligence. This month "5 minutes with..." focuses on pioneer **Prof. Nikhil R. Pal**.



1. What is your title, full name, and place of work?
I am Nikhil Ranjan Pal, Professor at the Indian Statistical Institute, Calcutta.
2. What grade of member in CIS are you?
Fellow.
3. How long have you been a member of CIS?
I have been an IEEE member for 28 years. I do not remember exactly when I joined CIS, but should be since its inception or close to that
4. One reason why you are a member of CIS
CIS is the home for what I do for living.
5. What was your service pathway in the Computational Intelligence Society?
I started as an Associate editor of IEEE Transactions on Fuzzy Systems, then became the Editor-in-Chief of the same transactions in 2005 and served for six years. Then served as a member of Administrative Committee of CIS. I have served many committees of CIS. Then in 2013 I became the Vice-President for Publications. I served for two terms as the Vice-President and now serving as the President of CIS.
6. What is your typical working day?
It starts at 9 AM and continues till mid night with some small breaks for lunch and dinner.
7. What is your ideal weekend?
Thanks to my very supportive family, who allowed me to add Saturday as a working day. So my weekend is just the Sunday. An ideal Sunday for me is to spend good time with my family and listen to some music.
8. Give one interesting fact about yourself:
I believe in myself, I believe in hard work and do not give up ea
9. What are you reading, watching or listening to at the moment:
I do not get much time to read beyond what is necessary for my profession (a lot of reading materials are left for post-retirement period). I enjoy listening to songs by a

on Computational Intelligence (WCCI 2018)
Rio de Janeiro, Brazil
Jul. 8-13, 2018

★ 2018 IEEE Conference on Computational Intelligence and Games (CIG 2018)
Maastricht, The Netherlands
Aug. 14-17, 2018

★ 2018 Joint IEEE International Conference on Developmental Learning and Epigenetic Robotics (ICDL-EpiRob 2018)
Tokyo, Japan
Sep. 17-20, 2018

★ 2018 IEEE International Conference on Data Science and Advanced Analytics (DSAA 2018)
Turin, Italy
Oct. 1-4, 2018

★ 2018 IEEE Smart World Congress (SmartWorld 2018)
Guangzhou, China
Oct. 8-12, 2018

★ 2018 IEEE Latin American Conference on Computational Intelligence (LA-CCI 2018)
Guadalajara, Mexico
Nov. 7-9, 2018

★ 2018 IEEE Symposium Series on Computational Intelligence (SSCI 2018)
Bangalore, India
Nov. 18-21, 2018
(Submission: Jul. 23)

★ 2019 IEEE Congress on Evolutionary Computation (CEC 2019)

(SS Proposal: Oct. 26)

Bengali Singer named Manna Dey – I am a great fan of his songs and whenever I get a chance I listen to his songs.

10. Favourite place:

My sweet home.

11. Person you would most like to meet – past or present, real or fictional:

Claude Elwood Shannon – how could someone come up with such a super powerful but simple-looking expression?

12. What items would you take on a desert island and why:

A very powerful telescope (I do not have it yet) just to enjoy the wonders of the night sky – it is a dream for me.

13. Can you share with us one success story that will motivate young members and provide useful guidelines for their careers?

In my view two keys to success are: Believe in yourself and do not give up (this often demands hard work). For various reasons I changed my academic/research path several times but relying on the above keys, in each case I was able to achieve something to make me happy. After my undergraduate in physics, I went for master in business management with specialization in operations research. Then I did masters in computer science. My Ph.D. is in image processing. Then I visited Prof. Bezdek, as a postdoc and I became seriously interested in fuzzy sets. I do not know, if this is a success story but I am happy with the end result.

Editor

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Members Activities

Events at IEEE WCCI 2018

- **Joint Reception for Young Professionals and Students**

IEEE CIS invites all the young professionals and students who attend the IEEE WCCI 2018 in Brazil to this reception on Jul 8 (Mon) at 8pm in Room Segovia I+II+III. The plan is to have good food, drinks and lots of networking. During this reception, you have the opportunity to meet the leading members of IEEE CIS including the editors of the IEEE CIS transactions.



- **Chapter Forum** (Jul 10, 11:30am)

- **Panel Discussion for Women in Computational Intelligence** (Jul 12, 7pm)

Technical Activities

IEEE CIS Scientific Mentoring Program

The IEEE CIS Scientific Mentoring Program is a service coordinated by the IEEE CIS Neural Network Technical Committee to support the research activity of IEEE CIS student members and young professionals. The Scientific Mentors can help IEEE CIS student members and young professionals by supporting their growth and guiding the steps in the field of Neural Networks and Learning Systems. This is a great opportunity for IEEE CIS student members and young professionals that can find in the source of suggestions and feedbacks about the research. ([Details](#))



Educational Activities

Summer School

2018 IEEE CIS Summer School on Computational Intelligence for Human and Machine Co-learning

Aug 21-24, 2018, Kaohsiung, Taiwan
National Kaohsiung Normal University

This IEEE CIS Summer School offers opportunities for students from senior high schools, undergraduate colleges, graduate schools, and even post-graduate to learn about fundamental and advanced aspects of human and machine co-learning from intellectual leaders of the field.



To register, please visit the [website](#).

Call for Papers (Journal)

- IEEE CIM Special Issue on Deep Reinforcement Learning and Games (Oct 1)
- IEEE CIM Special Issue on CI for Internet of Things in the Big Data Era (Dec 31)
- IEEE TEVC Special Issue on Theoretical Foundations of Evolutionary Computation (Oct 1)
- IEEE TEVC Special Issue on Parallel Evolution for Large Scale Optimization (Nov 1)
- IEEE TETCI Special Issue on Computational Intelligence for Cellular/Wireless Communications and Sensing (Oct 1)
- IEEE TETCI Special Issue on Big Data and Computational Intelligence for Agile Wireless IoT (Oct 15)
- IEEE TETCI Special Issue on Privacy and Security in Computational Intelligence (Nov 30)

Call for Papers (Conference)

- IEEE Symposium Series on Computational Intelligence (SSCI 2018) (Jul 23)
- IEEE SSCI 2018 Special Session on Computational Intelligence for Digital Data Hiding (Jul 23)
- IEEE Congress on Evolutionary Computation (CEC 2019)
- Australasian Joint Conference on Artificial Intelligence (AI 2018) (Jul 1)
- International Conference on Intelligent Control and Information Processing (ICICIP 2018) (Jul 15)
- International Conference on Advanced Computational Intelligence (ICACI2019) (Jan 1)

Call for Participation

- IEEE World Congress on Computational Intelligence (IEEE WCCI 2018), Rio de Janeiro, Brazil (Jul 8-13)

- [IEEE Conference on Computational Intelligence and Games \(CIG 2018\), Maastricht, The Netherlands \(Aug 14-17\)](#)
 - [Competitions at IEEE CIG 2018 \(Jul 15\)](#)
 - [International Summer Camp on AI, Hefei, China \(Jul 1-14\)](#)
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Career Opportunities

- [PhD Scholarship in Machine Learning for Quantum Estimation and Control at UNSW, Australia \(Jul 20\)](#)
- [PhD and Postdoc Positions on Exploring Duality for Future Data-driven Modelling at KU Leuven, Belgium \(Sep 17\)](#)

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