Computational Intelligence Society
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New Look of CIS Newsletter!

Combining learning techniques with data analysis to infuse intelligence and create smart worlds is current universal focus. IEEE CIS is on the lead of developing intelligent computational paradigms. Committees and task forces are established, and activities are organized, in CIS to facilitate the development and their applications. This new look of IEEE CIS Newsletter is aimed to provide the information of new development and achievements of CIS related techniques. We welcome all the people who are interested in the technology of computational intelligence, to work with us for creating smart worlds and intelligent environments, for the beneficial of human society. We welcome you to join us to stay in current technology front.
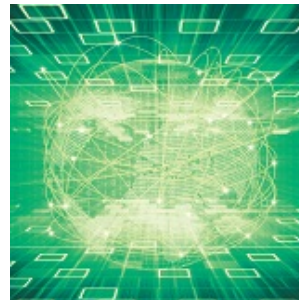
Pau-Choo (Julia) Chung, IEEE CIS Vice President for Members Activities

Research Frontier

Modeling the Tracking Area Planning Problem Using an Evolutionary Multi-Objective Algorithm

When planning the Tracking Areas (TAs) for a Long Term Evolution (LTE) network, the main concern of mobile operators is to achieve the minimization of both location update cost and paging cost. This paper proposes a new green field TA planning model using multi-objective optimization with constraints, aiming at finding a better trade-off between the two conflicting objectives. This new model integrates the network geographical information, therefore making it more realistic. Considering the impact of constraints, we design an evolutionary multi-objective algorithm based on a population decomposition strategy for the proposed model. Information about infeasible solutions can be fully utilized by population decomposition and thus the algorithmic efficiency can be greatly improved. A new coding scheme inspired by the famous four-color theorem is specially designed for this multi-objective TA planning model.

IEEE Computational Intelligence Magazine, Feb. 2017

Automatically Evolving Rotation-Invariant Texture Image Descriptors by Genetic Programming

In computer vision, training a model that performs classification effective[ly] on the extracted features, and the number of training instances. Conven[tional] detection and extraction are performed by a domain expert who, in many cases, is expensive to employ and hard to find. Therefore, image descriptors have emerged to automate these

★ Call for 2017 CIS Award Nominations

The completed nominations must be submitted by email to the Awards Committee Chair, Jose C. Principe and a copy to cis-info@ieee.org by **Apr. 30** in a single, standalone pdf file. (Details)

★ Application for DL Talks

Nominations are solicited for Distinguished Lecturer Talks for the year 2017. Nominations can be made by IEEE CIS chapter chairs. (Details)

CIS Conferences

★ Conference Calendar (2017-2018)

★ 2017 IEEE Congress on Evolutionary Computation (CEC 2017)
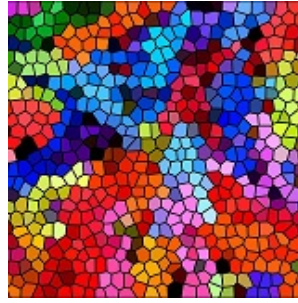San Sebastián, Spain
Jun. 5-8, 2017
(Call for Participation)

★ 2017 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2017)
Naples, Italy

★ 2017 IEEE Symposium Series on Computational

tasks. However, designing an image descriptor still requires domain-expert intervention. Moreover, the majority of machine learning algorithms require a large number of training examples to perform well. However, labeled data is not always available or easy to acquire, and dealing with a large dataset can dramatically slow down the training process. In this paper, we propose a novel genetic programming-based method that automatically synthesises a descriptor using only two training instances per class. The proposed method combines arithmetic operators to evolve a model that takes an image and generates a feature vector.

IEEE Transactions on Evolutionary Computation, Feb. 2017

Technical Activities

ETTC Task Force on Creative Intelligence

Creativity and Intelligence are considered required for addressing challenging problems, and also for creating art or appealing designs. Music, literature, architecture, painting, crafts, industrial design,... all could benefit from a better understanding and conceptualization of the processes behind Creativity and Intelligence. Although computers have exceeded the capabilities of humans in a number of limited domains, human creativity generally remains unchallenged, and only recently some techniques, such as Computational Intelligence (CI), have begun to address problems related to creativity. This task force aims at promoting the study of Creativity and its connection to Intelligence from the viewpoint of CI. The task force promotes the study of computational creative discovery, with the aim of both enhancing human creativity and generation of autonomous creative behaviors.

Read more

Call for Papers

- IEEE CIM Special Issue on CI Techniques in Bioinformatics and Bioengineering (Nov 15)
- IEEE TNNLS Special Issue on Deep Reinforcement Learning and Adaptive Dynamic Programming (May 1)
- IEEE TETCI Special Issue on CI for End-to-End Audio Processing (May 5)
- IEEE TETCI Special Issue on CI for Cloud Computing (May 31)
- IEEE TETCI Special Issue on Data Driven CI for e-Governance, Socio-Political and Economic Systems (Jun 5)
- IEEE TETCI Special Issue on New Trends in Smart Chips & Smart Hardware (Aug 1)
- IEEE Smart World Congress (SmartWorld 2017) (Apr 10)
- IEEE International Conference on Data Science and Advanced Analytics (DSAA 2017) (May 25)
- IEEE International Conference on Cyborg and Bionic Systems (CBS2017) (Jun 15)
- International Conference on Data Science, Technology and App (May 17)
- International Conference on Simulated Evolution and Learning (SEAL 2017) (May 20)

- International Conference on Behavioral, Economic, and Socio-Cultural Computing (BESC 2017) (May 29)

Career Opportunities

- PhD Studentship on Machine Learning, University of Leicester, UK (Apr 10)
- Post-doctor in Agent Based Modelling and CI, Coventry UK (Apr 13)
- Open positions within UTOPIAE (Apr 16)

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