

Conference Report on 2019 IEEE Congress on Evolutionary Computation (IEEE CEC 2019)

The IEEE Congress on Evolutionary Computation (IEEE CEC) is a leading event in the area of evolutionary computation. The conference encompasses a broad set of topics, including a variety of evolutionary computation techniques and applications in a wide range of real-world problems. In 2019, IEEE CEC was held from 10–13 June at Te Papa Tongarewa, the National Museum of New Zealand, located in the capital city, Wellington, which presents all the traditional culture and history of New Zealand. Since the first CEC, which took place in Orlando in 1994, the 2019 congress also marked the 26th milestone.

IEEE CEC has traditionally been sponsored by the IEEE Computational Intelligence Society (IEEE CIS). This year, the congress also received financial support from YiXue Education, ONRG and Facebook, and great support from Victoria University of Wellington and

Tourism New Zealand. By including a variety of topics in evolutionary computation, IEEE CEC provides a forum to bring together researchers and practitioners from all over the world to present and discuss their research findings on evolutionary computation.

IEEE CEC 2019 received 791 submissions and over 530 registrations from authors spanning 73 countries and regions. Among the submissions, a large number of papers demonstrated refreshing theories and concepts, supported by strong, compelling analytical and empirical analyses. Each paper was reviewed by at least two reviewers (and most papers received three or more reviews each). Based on rigorous reviews, 443 high-quality papers were accepted for oral and poster presentations. The accepted papers represent a diverse view of the latest advances in the area and give a preview of the next steps in our commitment to drawing inspiration from nature for solving real and practical problems. The organizing committee is truly humbled by this impressive display of support for the congress.

On 10th June, there were 18 free tutorials and 3 workshops that cover a wide range of topics and offer a great opportunity to disseminate in-depth information on specific areas of evolutionary computation. These topics range from multi-/many-objective optimization, large-scale optimization, hyper-heuristics, evolutionary machine learning, computer vision, to theory and real-world applications. In order to generate the most benefit for researchers and students to exchange ideas with established researchers in the field, a large amount of effort had been made to ensure that these tutorials were in high-quality and free to all attendees.

IEEE CEC 2019 also featured a public lecture and four plenary talks including an industry plenary talk, given by top researchers in the field of evolutionary computation:

- ❑ What Can Evolutionary Computation Do for You? (*public lecture*) by Prof Xin Yao
- ❑ Research Trends in Evolutionary Multi-Objective Optimization: Past, Present and Future by Prof Hisao Ishibuchi

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FIGURE 1 General Co-Chair (Mengjie Zhang) delivering the opening speech at IEEE CEC 2019.



FIGURE 2 Attendees socializing and indulging in delectable food and drinks at the Welcome Reception.



FIGURE 3 Attendees at the Young Professionals & Student Activities & Women in Computational Intelligence joint Reception.

- ❑ Towards the Autonomous Evolution of Robotic Ecosystems by Prof Emma Hart
- ❑ Creative AI through Evolutionary Computation by Prof Risto Miikkulainen
- ❑ How AI Makes Personalized Education Affordable to Every Family in China, industry plenary talk by Dr Wei Cui

The public lecture and the plenary talks presented the audience with cutting-edge research and technologies in the field of evolutionary computation.

Apart from the technical program, IEEE CEC 2019 also advocated socializing by supplementing a variety of events as part of the social program, providing attendees with opportunities to connect with other great minds with

common interests. Highlights include the Welcome Reception on 11th June which provided delectable food and drinks, and the IEEE CIS joint reception (i.e., Young Professionals, Student Activities and Women in Computational Intelligence) to boost communication and provide recognition among women, young professionals and students.

Amongst the social programs, the award banquet as the main event was held on the evening of the 12th June at the Amokura Gallery function venue, Te Papa Museum, which provided a great occasion for all participants, distinguished guests, and speakers to bond over gourmet food and drinks. The banquet also allowed for the recognition and celebration of researchers who achieved outstanding success in the field of evolutionary computation and computational

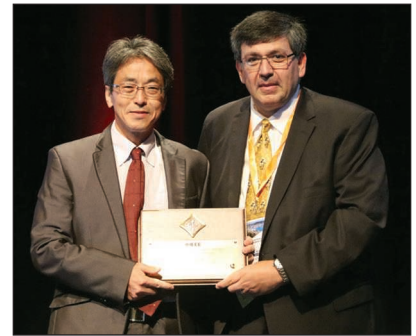


FIGURE 4 Hisao Ishibuchi (left) being presented the prestigious 2019 IEEE CIS Fuzzy Systems Pioneer Award by Carlos A. Coello Coello (right), 2019 IEEE Vice President-Members Activities.

intelligence. During the ceremony, recognition was given to the recipients of the 2019 IEEE CIS Fuzzy Systems Pioneer Award, 2019 IEEE CIS Outstanding PhD Dissertation Award, 2019 Transactions on Evolutionary Computation Outstanding Paper Award, 2019 IEEE Computational Intelligence Magazine Outstanding Paper Award, IEEE CEC 2019 Outstanding Conference Paper Award, Outstanding Student Paper Award, etc.

Last but not least, we would like to express our sincerest thanks to all people who have contributed in various ways for making IEEE CEC 2019 a successful conference. Through this grueling yet rewarding journey, we have witnessed and appreciated the unwavering devotion of everyone including the organizing committee members and student volunteers, who have dedicated their time and efforts for promoting and organizing the conference. Special thanks are also extended to all colleagues for their rigorous review of paper submissions, which is vital for the quality of accepted papers and the success of the congress. We also would like to thank all the authors' support in paper submissions and presentations, and to all delegates in making IEEE CEC 2019 a memorable event. We look forward to the next successful edition of IEEE CEC 2020 as part of IEEE World Congress on Computational Intelligence (WCCI) 2020, 19-24 July 2020, in Glasgow, UK.



FIGURE 5 General Co-Chairs, Mengjie Zhang (left) and Kay Chen Tan (center), receiving the token of appreciation from Xin Yao (right), former IEEE CIS President, for successfully organizing IEEE CEC 2019.