# EDITORIAL PREFACE

*Wei-Chiang Samuelson Hong, Department of Information Management, Oriental Institute of Technology, Panchiao, Taipei, Taiwan*

We are pleased to invite our readers to enjoy these contributions. During the last decades, modeling applications and theoretical innovations have successfully solved problems in a wide variety of fields such as forecasting, scheduling, classification, knowledge acquirement, biometrics, medical diagnosis, signal processing, etc., via hybridizing different evolutionary algorithms/models to overcome some critical shortcoming of a single evolutionary algorithm/model or via directly improving the shortcoming by theoretical innovative arrangements. IJAEC will continue receiving numerous interesting and high quality submissions.

In this issue, each paper has been carefully reviewed, and eventually, four regular papers, addressing wide applications of evolutionary computation and evolutionary algorithms, such as genetic algorithm in optimal aviation baggage screening strategies designing, localalized genetic algorithm in large scale capacitated vehicle routing problems, parallelized ACO algorithm in solving stagnation mitigation of multimedia traffic over mobile adhoc networks (MANETs), differential evolution in optimizing the kernel parameters in RBF networks for classification, Gabor wavelet with Pseudo hidden Markov model in human face recognition.

The first article, by Aguirre, Espiritu, and Hernandez from The University of Texas at El Paso (USA), employs genetic algorithm and Memetic algorithm to obtain optimal aviation baggage screening strategies. A baggage screening strategy consists of various hierarchical levels of security screening devices through which a checked bag may pass through. A solution to the aviation baggage screening problem entails the number and type of devices to be installed at each hierarchical level. Their experiments indicate that both algorithms reach the optimal solution in the majority of the cases except for levels 9 and 10 in which the Memetic Algorithm was able to find the optimal solution in less number of iterations but with an increase in computational time. The best solution of the Memetic algorithm found is at level 9, at a cost of 1.3618e+007 dollars.

The second paper, by Ursani, Essam, Cornforth, and Stocker from University of New South Wales and University of Newcastle Australia, extend their previous research, where using genetic algorithm with automated problem decomposition strategy for small scale capacitated vehicle routing problems (CVRP) and vehicle routing problem with time windows (VRPTW), to large scale capacitated vehicle routing problems by introducing selective search version of our automated problem decomposition strategy, a faster genotype to phenotype translation scheme, and various search reduction techniques. Their experiments conclude that that genetic algorithm used with automated problem

decomposition strategy outperforms the GAs applied on the problem as a whole not only in terms of solution quality but also in terms of computational time on the large scale problems.

The third paper, by Sharma and Kotecha from Nirma University (India), based on a comparative analysis of stagnation control and avoidance solving schemes with resepct to the parameter on which they depend for stagnation avoidance, proposes a parallelized ACO algorithm to improve the exploratory behaviour of ants, by parallelly releasing two streams of forward ants in each iteration, along the path from source to destination. The technique has shown major improvement in the packet drops and throughput of transmission. The results manifest that the proposed parallelized ACO algorithm, by using parallel generation of ants after fixed time interval for different catergories of multimedia frames, can help the routes not get stranded into local optima and can explore new and better paths even with dynamically changing network which is controlled by changing the pause time in the Random Waypoint Model used for simulation of MANET environment.

The fourth article, by Dash and Behera from Silicon Institute of Technology (India), Dehuri from Fakir Mohan University (India), and Cho from Yonsei University (South Korea), proposes a two-phase learning algorithm with a modified kernel for radial basis function neural networks classification. In phase-one, differential evolution is proposed to determine the parameters of the modified kernel, while in phase-two, optimization of these learning weights of the networks will be conducted. Empirical results obtained reveal that the proposed learning mechanism is evidently producing better classification accuracy vis-à-vis radial basis function neural networks (RBFNs) and genetic algorithm- radial basis function (GA-RBF) neural networks.

The last article in this issue, by Kar from Indian Statistical Institute (India), Bhattacharjee, Nasipuri, Basu, and Kundu from Jadavpur University (India), proposes a novel methodology by combining the multi-resolution feature of the Gabor wavelet transformation (GWT) with the local interactions of the facial structures expressed through the Pseudo hidden Markov model (PHMM) to human face recognition. Unlike traditional HMMs, the proposed PHMM does not perform the state conditional independence of the visible observation sequence assumption. This is achieved via the concept of local structures introduced by the PHMM used to extract facial bands and automatically select the most informative features of a face image. This method has been successfully tested on frontal face images from the ORL, FRAV2D, and FERET face databases where the images vary in pose, illumination, expression, and scale. Empirical results show that the proposed Gabor wavelet with Pseudo hidden Markov model is far better than the recent and most referred systems.

In closing, I would like to thank the IGI Global publisher, for making IJAEC possible. In addition, since IJAEC is a collaborative effort from all members of the Editorial Board, the composited work reveals the diverse topics in EC, I would like to take this opportunity to thank each member for her/his valuable cooperation. Via their hard works and contributions from authors, IJAEC has been indexed in several important academic citation database, such as DataBase systems and Logic Programming (DBLP), INSPEC, MediaFinder, and Google Scholar. We will do our best to push IJAEC be indexed in EI Compendex databse and SCOPUS in the future three years. I am looking forward to hearing your comments, criticisms and suggestions to continuously enhance it and serve you better. You are also invited to contribute to IJAEC according to your interests and expertise.

Enjoy your reading and do not hesitate to send us your thoughts about these papers as well as your own research paper in the exciting field of evolutionary computation! We look forward to reading from you soon, and stay with us!

*Wei-Chiang Samuelson Hong*
*Editor-in-Chief*
*IJAEC*

*Wei-Chiang Samuelson Hong is an Associate Professor in the Department of Information Man-agement at the Oriental Institute of Technology, Taiwan. His research interests mainly include computational intelligence (neural networks and evolutionary computation), and application of forecasting technology (ARIMA, support vector regression, and chaos theory), and tourism competitiveness evaluation and management. Dr. Hong's articles have been published in* Applied Mathematics and Computation, Applied Mathematical Modelling, Applied Soft Computing, Control and Cybernetics, Current Issues in Tourism, Decision Support Systems, Electric Power Systems Research, Energy, Energies, Energy Conversion and Management, Energy Policy, Hy-drological Processes, IEEE Transactions on Fuzzy Systems, International Journal of Advanced Manufacturing Technology, International Journal of Electrical Power & Energy Systems, Journal of Systems and Software, Neural Computing and Applications, Neurocomputing*, and* Water Resources Management*, among others. Dr. Hong is currently on the editorial board of several journals, including* International Journal of Applied Evolutionary Computation, Neurocomput-ing, Neural Computing & Applications, Mathematical Problems in Engineering*, and* Energy Sources Part B: Economics, Planning, and Policy*. Dr. Hong presently teaches courses in the areas of forecasting methodologies and applications, hybridizing evolutionary algorithms, and conducts research in the areas of prediction modeling, simulation and optimization; artificial neural network, and novel forecasting development. Dr. Hong serves as the program committee of various international conferences including premium ones such as IEEE CEC, IEEE CIS, IEEE ICNSC, IEEE SMC, IEEE CASE, and IEEE SMCia, et cetera. He is a senior member of IIE and IEEE. He is indexed in the list of* Who's Who in the World *(25th-29th editions),* Who's Who in Asia *(2nd edition), and* Who's Who in Science and Engineering *(10th and 11th editions).*