

# The IEEE CIS Distinguished Lecturer talk at FedUni

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The IEEE CIS Distinguished Lecturer talk on 19<sup>th</sup> December 2019 at Federation University, Mt Helen Campus. Please join us in giving a warm welcome to **Prof Ponnuthurai N. Suganthan**, Nanyang Technological University, Singapore.

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## Date and Time

## Location

## Hosts

## Registration

Date: **19 Dec 2019**

Time: **10:30 AM to 11:30 PM**

All times are Australia/Melbourne

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University Drive  
Mt Helen, Victoria  
Australia 3350  
Building: Building T  
Room Number: T121



[Federation University Australia](#)  
[Victorian Section Chapter, CIS11](#)

Co-sponsored by IEEE VIC CIS Chapter

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## Speakers

**Prof Suganthan** of Nanyang Technological University, Singapore

Topic: **Differential Evolution with ensemble and topologies for Numerical optimization**



Differential Evolution (DE) is one of the most powerful stochastic real-parameter optimization algorithms of current interest. DE operates through similar computational steps as employed by a standard Evolutionary Algorithm (EA). However, unlike traditional EAs, the DE-variants perturb the current-generation population members with the scaled differences of distinct population members. Therefore, no separate probability distribution has to be used for generating the offspring. Since its inception in 1995, DE has drawn the attention of many researchers all over the world resulting in a lot of variants of the basic algorithm with improved performance. This talk will begin with a brief overview of numerical optimization, the basic concepts related to DE, its algorithmic components and control parameters. It will subsequently discuss some of the significant algorithmic variants of DE for bound constrained single-objective optimization. The talk will discuss the effects of incorporating ensemble learning in DE and neighbourhood topologies based DE and adaptive DEs to improve the performance of DE.

#### Biography:

Ponnuthurai Nagarathnam Suganthan received the B.A degree, Postgraduate Certificate and M.A degree in Electrical and Information Engineering from the University of Cambridge, UK in 1990, 1992 and 1994, respectively. After completing his PhD research in 1995, he served as a pre-doctoral Research Assistant in the Dept. of Electrical Engineering, University of Sydney in 1995-96 and a lecturer in the Dept. of Computer Science and Electrical Engineering, University of Queensland in 1996-99. He moved to Singapore in 1999. He is a founding co-editor-in-chief of Swarm and Evolutionary Computation (2010 - ), an SCI Indexed Elsevier Journal with an impact factor of 6.33 in 2019-2020. He is an associate editor of Applied Soft Computing (Elsevier, 2018-), Neurocomputing (Elsevier, 2018-), IEEE Trans on Evolutionary Computation (2005 -), Information Sciences (Elsevier, 2009 -), Pattern Recognition (Elsevier, 2001 -) and Int. J. of Swarm Intelligence Research (2009 -) Journals. He was an Editorial Board Member of the Evolutionary Computation Journal, MIT Press (2013-2018) and an associate editor of the IEEE Trans on Cybernetics (2012 - 2018). His co-authored SaDE paper (published in April 2009) won the "IEEE Trans. on Evolutionary Computation outstanding paper award" in 2012. His former PhD student, Dr Jane Jing Liang, won the IEEE CIS Outstanding PhD dissertation award, in 2014. His research interests include swarm and evolutionary algorithms, pattern recognition, forecasting, randomized neural networks, deep learning and applications of swarm, evolutionary & machine learning algorithms. His SCI indexed publications attracted over 1000 SCI citations in a calendar year since 2013. He was selected as one of the highly cited researchers by Thomson Reuters every year from 2015 to 2019 in computer science. He served as the General Chair of the IEEE SSCI 2013. He is an IEEE CIS distinguished lecturer (DLP) in 2018-2020. He has been a member of the IEEE (S'91, M'92, SM'00, Fellow'15) since 1991 and an elected AdCom member of the IEEE Computational Intelligence Society (CIS) in 2014-2016.

Address: Australia

# The IEEE CIS Distinguished Lecturer talk

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The IEEE CIS Distinguished Lecturer talk on 20<sup>th</sup> December 2019 at Swinburne University of Technology, Hawthorn Campus. Please join us in giving a warm welcome to **Prof Ponnuthurai N. Suganthan**, Nanyang Technological University, Singapore.

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## Date and Time

## Location

## Hosts

## Registration

Date: **20 Dec 2019**

Time: **10:30 AM to 11:30 AM**

All times are Australia/Melbourne

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John Street  
Swinburne University of Technology (Hawthorn Campus)  
Melbourne, Victoria  
Australia 3122  
Building: Engineering  
Room Number: EN101

[Federation University Australia](#)  
[Victorian Section Chapter, CIS11](#)  
Co-sponsored by IEEE VIC CIS Chapter

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## Speakers

**Prof Suganthan** of Nanyang Technological University, Singapore

Topic: **Randomization-Based Deep and Shallow Neural Networks**

This talk will first introduce the main randomization-based feedforward neural networks with closed-form solutions. The popular instantiation of the feedforward type called random vector functional link neural network (RVFL) originated in early 1990s. RVFL variants will be empirically evaluated. Subsequently, deep versions of RVFL will be presented as a single and ensemble classifiers. The talk will also present extensive benchmarking studies using classification and forecasting datasets.

Biography:

Ponnuthurai Nagarathnam Suganthan received the B.A degree, Postgraduate Certificate and M.A degree in Electrical and Information Engineering from the University of Cambridge, UK in 1990, 1992 and 1994, respectively. After completing his PhD research in 1995, he served as a pre-doctoral Research Assistant in the Dept. of Electrical Engineering, University of Sydney in 1995-96 and a lecturer in the Dept. of Computer Science and Electrical Engineering, University of Queensland in 1996-99. He moved to Singapore in 1999. He is a founding co-editor-in-chief of Swarm and Evolutionary Computation (2010 - ), an SCI Indexed Elsevier Journal with an impact factor of 6.33 in 2019-2020. He is an associate editor of Applied Soft Computing (Elsevier, 2018-), Neurocomputing (Elsevier, 2018-), IEEE Trans on Evolutionary Computation (2005 -), Information Sciences (Elsevier, 2009 - ), Pattern Recognition (Elsevier, 2001 - ) and Int. J. of Swarm Intelligence Research (2009 - ) Journals. He was an Editorial Board Member of the Evolutionary Computation Journal, MIT Press (2013-2018) and an associate editor of the IEEE Trans on Cybernetics (2012 - 2018). His co-authored SaDE paper (published in April 2009) won the "IEEE Trans. on Evolutionary Computation outstanding paper award" in 2012. His former PhD student, Dr Jane Jing Liang, won the IEEE CIS Outstanding PhD dissertation award, in 2014. His research interests include swarm and evolutionary algorithms, pattern recognition, forecasting, randomized neural networks, deep learning and applications of swarm, evolutionary & machine learning algorithms. His SCI indexed publications attracted over 1000 SCI citations in a calendar year since 2013. He was selected as one of the highly cited researchers by Thomson Reuters every year from 2015 to 2019 in computer science. He served as the General Chair of the IEEE SSCI 2013. He is an IEEE CIS distinguished lecturer (DLP) in 2018-2020. He has been a member of the IEEE (S'91, M'92, SM'00, Fellow'15) since 1991 and an elected AdCom member of the IEEE Computational Intelligence Society (CIS) in 2014-2016.

Address:Australia