IEEE CIS Distinguished Lecture Program
By Prof Chia-Feng Juang National Chung Hsing University, Taichung, Taiwan, R.O.C.

Speaker:	Prof Chia-Feng Juang (IEEE Distinguished Speaker, IEEE Fellow), National Chung Hsing University, Taichung, Taiwan, R.O.C.
Hosted Chapter:	IEEE Computational Intelligence Society (CIS), Victorian Section, Australia
Coordinator:	Malka N. Halgamuge, Chair VIC CIS (malka_nisha@ieee.org)
Date of Event:	Wednesday 5th October 2022
Time:	5.00 – 6.00 pm (AEST)
Number of Participants:	23
VIC CIS Chapter website:	https://r10.ieee.org/victorian-cis
DLP Title:	Data-driven Interpretable Fuzzy Systems

Abstract:

AI has become a popular research topic in recent years and has shown great success in different applications. However, most AI models function as black boxes and it is hard to explain the inference process of a suggestion made by these models. In this context, explainable AI (XAI) has attracted the attention of many researchers. Fuzzy systems (FSs) that show the advantage of interpretability in their inference fuzzy rules may provide a possible solution to XAI. In this talk, the basic concept of FSs and their interpretability will be introduced. Then, I will introduce our recent research results in data-driven interpretable FSs. Two learning techniques of data-driven interpretable FSs, including fuzzy neural networks (FNNs) and multiobjective evolutionary FSs (EFSs), will be introduced together with their applications. For FNNs, I will start with learning with low-dimensional data and its application to classification and prediction problems. Learning of FNNs with high-dimensional feature maps from a deep learning model and its application to image classification problems will then be given. The technique of multiobjective EFSs aims to find a set of non-dominated FSs that show tradeoffs between different objectives such as system interpretability and model accuracy through multiobjective evolutionary computation algorithms. In this subtopic, I will introduce the Multiobjective EFS we recently proposed and its applications.

Biography:

Chia-Feng Juang received the B.S. and Ph.D. degrees in Control Engineering from the National Chiao-Tung University, Hsinchu, Taiwan, in 1993 and 1997, respectively. Since 2001, he has been with the Department of Electrical Engineering, National Chung Hsing University, Taichung, Taiwan, where he became a Distinguished Professor in 2009. He served as the Chapter Chair of IEEE Computational

Intelligence, Taipei Section, in 2017-2018, during which the chapter won the Outstanding Chapter Award from IEEE Taipei Session. Dr. Juang has coedited one book and authored or coauthored over 110 journal papers (including over 60 IEEE journal papers), ten book chapters, and over 130 conference papers. Five of his highly-cited papers have collected over 3400 citations in Google Scholar. His current research interests include computational intelligence, intelligent control, computer vision, and evolutionary robots.

Dr. Juang received the Outstanding Electrical Engineering Professor Award from Chinese Institute of Electrical Engineering, Taiwan, in 2019; and the Outstanding Research Award from Ministry of Science and Technology, Taiwan, in 2021. He was elevated to Chinese Automatic Control Society Fellow in 2016, IEEE Fellow in 2019, and Taiwan Fuzzy Systems Association Fellow in 2022. He is a Distinguished Lecture of IEEE Computational Intelligence Society. He is an Associate Editor of the IEEE Transactions on Fuzzy Systems, the IEEE Transactions on Cybernetics, and the Asian Journal of Control and an Area Editor of the International Journal of Fuzzy Systems.

Address: National Chiao Tung University, , Hsinchu, Taiwan

2. Category: Distinguished Lecturer Program (DLP)

Title: Data-driven Interpretable Fuzzy Systems

Speaker: Prof Chia-Feng Juang (IEEE Distinguished Speaker, IEEE Fellow), National Chung Hsing University, Taichung, Taiwan, R.O.C.

Location (Virtual Webinar): https://us06web.zoom.us/j/82260981489?pwd=VEtGUHNBbStEdjN4Rkpvd2x1ZEM1UT09

Time: 5.00 – 6.00 pm (AEST) Wednesday 5th October 2022

Register: https://events.vtools.ieee.org/m/322587

For further details contact: Malka N. Halgamuge, Chair VIC CIS (Email)

VIC CIS Chapter website: https://r10.ieee.org/victorian-cis

IEEE CIS DLP Report (Victoria Chapter)

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IEEE VIC CIS TALK ON FUZZY SYSTEMS (IEEE DISTINGUISHED LECTURE SERIES)

#FuzzySystems #ArtificialIntelligence #AI #explainableAI #XAI #fuzzyneuralnetworks #FNN #evolutionary

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IEEE VIC CIS Chapter

Professor Chia-Feng Juang (IEEE Distinguished Speaker) will deliver a talk on **Fuzzy Systems**.

This is a part of the IEEE Victorian Computational Intelligence Society (CIS) series of talks. The online delivery is kindly hosted by IEEE Victorian Section and will take place 5.00 -6.00 pm (AEST).

Join Zoom Meeting (5th Oct at 5:00 pm, AEST)
https://us06web.zoom.us/j/82260981489?pwd=VEtGUHNBbStEdjN4Rkpvd2x1ZEM1UT09

Meeting ID: 822 6098 1489
Passcode: 926525

DATE AND TIME

Date: **05 Oct 2022**

Time: **05:00 PM to 06:00 PM**

All times are (UTC+10:00) Canberra

Add Event to Calendar
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LOCATION

Please use vTool for registration.

Join Zoom Meeting (5th Oct at 5:00 pm, AEST)
https://us06web.zoom.us/j/8226098148
pwd=VEtGUHNBbStEdjN4Rkpvd2x1ZEM1

Meeting ID: 822 6098 1489
Passcode: 926525

HOSTS

Victorian Section Chapter,CIS11

Contact Event Host

Co-sponsored by IEEE VIC CIS Chapter; IEEE VIC Section

REGISTRATION

Starts **27 August 2022 10:44 AM**

Ends **05 October 2022 04:00 PM**

All times are (UTC+10:00) Canberra

No Admission Charge

Registration Closed