Speaker introduction

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(Life Senior Member IEEE)

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He is Executive Chairman of i-SOMET Incorporated Association, Japan, and Distinguished Professor at Iwate Prefectural University, Japan, he is also Research Professor at University of Granada, Spain, and Distinguished Visiting Professor at Universiti Teknologi Malaysia, National Taipei University of Technology, Taiwan,, HUTECH University, Vietnam, Harbin Engineering University, China. He is Highly Cited Researcher in Cross-Field for the year 2019 and in Computer Science for the years 2020, 2021 and 2022, by Clarivate Analytics. He received Doctor Honoris Causa from Óbuda University, Budapest, Hungary, in 2013 and received Doctor Honoris Causa from Timisoara Technical University, Timisoara, Romania, in 2018, and a title of Honorary Professor from Óbuda University, in 2011. He is Distinguished Research Professor at the University of Granada, and Adjunct Professor with Taipei Technical University, Taiwan, Harbin Engineering University, China and others. He supervised Ph.D. students jointly with the University of Laval, Quebec City, QC, Canada; University of Technology Sydney; Oregon State University,

Corvallis, OR, USA; University of Paris 1 Pantheon-Sorbonne, Paris, France; and University of Genoa, Italy. Dr. Fujita is the recipient of the Honorary Scholar Award from the University of Technology Sydney, in 2012. He was the Editor-in-Chief for Knowledge-Based Systems (Elsevier) (2005-2019) and then Emeritus Editor of Knowledge-Based Systems in 2020~. Since 2020 he is currently the Editor-in-Chief of Applied Intelligence (Springer) and the Editor-in-Chief of International Journal of Healthcare Management (Taylor & Francis). He headed a number of projects including intelligent HCI, a project related to mental cloning for healthcare systems as an intelligent user interface between human-users and computers, and SCOPE project on virtual doctor systems for medical applications. He collaborated with several research projects in Europe, and recently he is collaborating in OLIMPIA project supported by Tuscany region on Therapeutic monitoring of Parkison disease.

Abstract

On Challenges in Machine Learning and Data Analytics: Deep Learning New Trends

The challenges in big data analytics are the high dimensionality and complexity in data representation for better decision in Artificial Intelligence related applications. Granular computing and feature selection are among the challenge to deal with big data analytics that is used for Decision making. We will discuss these challenges in this plenary talk and provide new projection on ensemble learning for health care risk prediction. I will highlight Artificial Intelligence outline and research challenges. Then I will explain an outlines on machine learning analytics on big data will. Then I will focus on medical healthcare applications. In the talk there will be focus on devises collected information in multidimensional data streams that are reflecting life style, environment and physical data. These are called as data streams that require learning models adaptable to objects with for decisions. These data streams change over time, so that the learned model may not become obsolete, leading to concept drift in providing better learning methods. On important aspect in project of multi-sensing for healthcare that has three layers. Each layer has a set of features resembling a set of conditions, are ensemble of different classifiers that are trained to achieve best accuracy. Feature selection plays an important role in data mining in multiclass classification as it ca reduce complexity of training with good accuracy. Decomposition and ensemble methods can increase the performance on multi-class classification problems. However, the accuracy is affected by the imbalanced data that could affect the training of different classifiers and also could involve in making the accuracy of prediction not appropriate. Also, these ensemble classifiers have to adapt, automatically to the changes in the streams. The talk will discuss these issues and provide a challenge and solution to overcome such problems. Also, outline several decomposition strategies for ensemble methods to enhance the accuracy rate and provide better active and adaptive ensemble. There will be also an outline of deep learning, and its limitations, also recent innovation in transformers. These are series of talks that I will provide during my visit to NTUT.