

Knowledge Discovery for Computational Intelligence Research (KDCIR)

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Abstract

Data is crucial for computational modeling to solve complex real world problems. Data acquisition through sensors, encoding/representation as data, extraction of patterns/information/knowledge all are crucial steps in modeling. The evolving field of ‘Big Data’ combines artificial intelligence, signal processing, data representation, data analytics, knowledge discovery from big data for analytics and predictive modeling. It includes representing and analyzing structured and unstructured data sourced from various sources. Distributed computational paradigms such as multi-agents are argued as efficient approaches to distributed knowledge discovery and modeling. The talk will summarize the KDCIR research motivated by problems from optimization, planning, training-performance modeling in elite sports (cycling), obesity/diabetes modeling, renal transplantation, stress/depression modeling and education analytics. Knowledge discovery from brain-computer interaction has also been studied to decode and learn from brain signals to provide a multichannel interaction for human-centered applications. The research and innovation from KDCIR projects will be summarized.

A Short Biography

Professor Dharmendra Sharma has been the Dean of the Faculty of Information Sciences and Engineering at the University of Canberra from 2004-2012. He has assumed various senior leadership roles in universities for over eighteen years. He has been awarded the position of University Distinguished Professor by the University of Canberra in 2012. Prof Sharma’s research background is in the Artificial Intelligence areas of Planning, Data Analytics and Knowledge Discovery, Predictive Modeling, Constraint Processing, Fuzzy Reasoning, Brain-Computer Interaction, Hybrid Systems and their applications to health, education, security, digital forensics and sports. He has published over 210 research papers and has supervised to completion 23 higher degrees research students. He has received several competitive research awards and recognitions for his research leadership initiatives. He is a Fellow of the Australian Computer Society, a Fellow of the South Pacific Computer Society, and a Senior Member of IEEE. Prof Sharma has served on several industry, academic, and research bodies including government advisory committees. He had completed his PhD from the Australian National University and has been an academic for over 30 years. He may be contacted at Dharmendra.Sharma@canberra.edu.au.