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Edmonton, April 21<sup>st</sup>, 2014

Prof. Gary Yen  
Awards Committee Chair  
IEEE CIS

Re: Nomination Letter for IEEE CIS Outstanding PhD Dissertation Award 2014

Dear Prof. Yen,

It is with great pleasure that I nominate the PhD thesis of **Daniel Leite** titled *Evolving Granular Systems* to the IEEE CIS Outstanding PhD Dissertation Award 2014. Daniel developed his research at the School of Electrical and Computer Engineering of the University of Campinas (UNICAMP), located at Campinas, State of São Paulo, Brazil. The University of Campinas is within the top 50 best young world universities. Daniel received the PhD degree in 2012. His thesis brings original contributions to computational intelligence, especially for fuzzy and evolving granular systems. The evolving approach focuses on online data stream processing and incremental learning. The contributions of Daniel are original and have potential application in a wide variety of problems including classification, clustering, time series forecasting, granular modeling and granular fuzzy control of dynamic systems. He introduces new modeling frameworks to represent and process granular data streams. Data can be real numbers, intervals, or fuzzy sets. Firstly, the thesis develops an interval-based evolving modeling approach. Secondly, the interval granular approach is extended to cover evolving fuzzy modeling. Thirdly, evolving granular neural modeling schemes are developed using new neural fuzzy network structure. A specific case of universal approximation of granular modeling is proved. This is important in applications that require real-valued model outputs in addition to granular information. Extensive computational results and illustrative applications are presented and discussed. The results clearly show the efficacy, usefulness, and performance of the approaches he developed. Daniel has published in major journals of the area, contributed with several internationally edited books, and published and presented papers in major IEEE conferences.

As far as I am aware of, Daniel is very committed with research in evolving and granular modeling and currently develops new granular state space evolving modeling and control methods.

I restate that, without any reservation, I *highly* recommend his thesis for the IEEE CIS Outstanding PhD Dissertation Award 2014.

Should you require any additional information, do not hesitate to contact me (wpedrycz@ualberta.ca).

Cordially,

  
Witold Pedrycz