7th International Conference on Information Technology and Quantitative Management ITQM 2019 Best Paper Award

Raul-Cristian ROMAN, Radu-Emil PRECUP, Claudia-Adina BOJAN-DRAGOȘ & Alexandra-Iulia SZEDLAK-STÎNEAN

The team consisting of As.Dr.Ing. Raul-Cristian ROMAN, Prof.Dr.Ing. Radu-Emil PRECUP, Ș.I.Dr.Ing. Claudia-Adina BOJAN-DRAGOȘ, Ș.I.Dr.Ing. Alexandra-Iulia SZEDLAK-STÎNEAN received "Best Paper Award" for the paper "Combined Model-Free Adaptive Control with Fuzzy Component by Virtual Reference Feedback Tuning for Tower Crane Systems" presented at the 7th International Conference on Information Technology and Quantitative Management ITQM, which took place in Granada, Spain, in November 03-06, 2019. (http://itqm-meeting.org/2019/)

The International Conference on Information Technology and Quantitative Management (ITQM), established by International Association of ITQM (IAITQM), is a global forum for exchanging research findings and case studies that bridge the latest information technology and quantitative management techniques. It explores how the use of information technology to improve quantitative management techniques and how the development of management tools can reshape the development of information technology. This conference is focused on exploring innovations, controversies, and challenges facing our scientific community today. The theme of ITQM 2019 is "Information technology and quantitative management based on Artificial Intelligence".

GRANADA Spain
November 3-6, 2019

BEST PAPER AWARD

This best paper award certificate is presented to

"Raul-Cristian Roman, Radu-Emil Precup, Claudia-Adina Bojan-Dragos and Alexandra-Iulia Szedlak-Stinean"

for their paper

Combined Model-Free Adaptive Control with Fuzzy Component by Virtual Reference Feedback Tuning for Tower Crane Systems

at the 7th International Conference on Information Technology and Quantitative Management (ITQM 2019)

Granada, Spain, November 3-6, 2019.

Prof. Enrique Herrera-Viedma
Conference Co-Chair, IAITQM

Prof. Yong Shi
Conference Co-Chair, IAITQM

The paper proposes a novel mix of two data-driven algorithms. The purpose of mixing the algorithms is to exploit the main advantage of data-driven Virtual Reference Feedback Tuning (VRFT) algorithm, represented by the automatic computation of the optimal parameters using metaheuristic Grey Wolf Optimizer (GWO) for the Compact Form Dynamic Linearization (CFDL) version of the authors' Model-Free Adaptive Control Takagi-Sugeno Fuzzy Algorithm (CFDL-PDTSFA), and the parameters of the CFDL-PDTSFA are optimally tuned in a model-free manner using VRFT.

Three specific optimization problems are defined and solved by Model-Free Adaptive Control, VRFT and GWO algorithms. The novel algorithm is validated using experimental results to the arm angular position of the nonlinear tower crane system laboratory equipment.

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