

VRI - COLLOQUIUM # 13

“INVESTIGACIONES EN GESTIÓN DE LA CADENA DE SUMINISTRO: PREDICCIÓN DE DEMANDA BASADO EN REDES NEURONALES Y EVALUACIÓN DE LA EFICIENCIA DEL PICKING BAJO FLUCTUACIONES DE DEMANDA”

Disertantes: Jorge Calvimontes y Jens Bürger, PhD
Institute for Computational Intelligence (ICI)

Resumen:

We will present two research articles that have been accepted for publication at the Production and Operations Management Society (POMS) conference. The first article “Product demand forecasting based on reservoir computing” investigates the use of recurrent neural networks (RNN) for demand forecasting. RNN are dynamical systems that exhibit computation and memory of past input data. We compare the forecasting accuracy of RNN with formal mathematical methods commonly used in industry. When time-series demand functions show complex patterns or sudden changes RNN, as input-driven dynamical systems, clearly outperform static mathematical models. In addition, the type of neural network chosen can be trained rapidly, even without detailed knowledge about the demand data. The second article “Evaluating order picking efficiency under demand fluctuations” analyses the relation between product storage assignment (slotting) in warehouses and order picking efficiency under time-varying customer orders. We compare three slotting strategies with respect to their average order picking distances. Our results indicate the existence of a trade-off between optimizing order picking distance and robust slotting strategies. While a Genetic Algorithm can produce the best slotting for a given order behavior, it also makes the order-picking more sensitive. The practical implication is the need to define re-slotting intervals that can best articulate the compromise between optimality and robustness.

FECHA: LUNES 19/11

HORA: 11:00

LUGAR: EX-SALA JURIDICA