3-Day Soft Computing and Data Analysis for Production Planning

Intelligent Decision Making to Increase Production Efficiency

Making strategic decision by optimizing manufacturing resources is a great challenge. New production processes are usually costly, affected by numerous factors, and the potential benefits are often hard to justify prior to implementation. Traditionally, decisions are made based upon intuition and past experience. This course introduces a soft computing approach to statistical data analysis with intelligent decision support systems for production planning as well as for manufacturing technology investments.

Course Outline

Day 1

Data Exploration
- Different types of data
- Representation of data
- Visualisation of data distribution

Probability Concept and Statistical Inference
- Relationship among data variables
- Formulation of probability functions and statistical functions
- Hypothesis testing

Regression Analysis
- Linear regression
- Multiple regression
- Time-series forecasting

Case study: Statistical approaches to production data analysis

Day 2

Decision Making under Uncertainty
- Decision principles
- Bayesian decision theorem
- Minimum risk decision

Machine Intelligence
- Human intelligence
- Artificial intelligence
- Computational intelligence

Neural Computation
- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

Case study: Neural computation approaches for machine condition monitoring and for intelligent decision support of manufacturing technology investment

Day 3

Fuzzy Computation
- Fuzzy sets and operations
- Fuzzy logic and approximate reasoning
- Fuzzy inference models

Evolutionary Computation
- Genetic algorithm
- Evolution-based models
- Swarm intelligence and emerging models

Case Studies
- Fuzzy computation: application of fuzzy computation approach to failure mode and effect analysis (FMEA)
- Evolutionary computation: application of evolutionary computation approach to product-mix planning in high-mix-low-volume manufacturing and production process optimization

Public Training Session
Open for Registration

Date: 22-24 January 2014 (Wednesday - Friday)

Time: 0900 - 1700

Venue: Ramada Plaza Melaka
Jalan Bendahara,
75100 Melaka, Malaysia

This public training is HRDF (PSMB) claimable.
Register by 16th December 2013 to enjoy early bird discount.
Certificate will be awarded to participants who complete the training.
Lunch, refreshments and training handout provided and included.
Transportation and accommodation not included.

Go TRAINING

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About Go Training

Go Training applies effective pedagogical methodologies that demonstrate case studies and hands-on practical skills, in addition to explaining clearly how things work in principle. Every course that we conduct is delivered by a subject matter expert who holds the academic qualification and working experience in that specialization. On the days when they are not teaching, our trainers work on consultancy projects and technical deliveries. Their work has received numerous recognition and awards in the industry. Our trainers have been invited as keynote speakers at numerous international conferences, and as principal consultants for various industries.

About the Instructor

Professor Dr. Lim Chee Peng received his B.Eng. (Electrical) (1st class honours) degree from Universiti Teknologi Malaysia, in 1992 and M.Sc. (Control Systems) (Distinction) and Ph.D. degrees from University of Sheffield, U.K., in 1993 and 1997, respectively. He joined Universiti Sains Malaysia in 1997, and has been a Professor with School of Electrical and Electronic Engineering and later School of Computer Sciences, since 2007. He has published more than 230 technical papers in books, international journals, and conference proceedings, received 7 best paper awards in international conferences, 5 gold medals/special awards in international/national product exhibitions, as well as many international fellowships including Commonwealth Fellowship to University of Cambridge, Fulbright Scholarship to University of California, Berkeley, JSPS (Japan Society for the Promotion of Science) Research Fellowship to Kyushu University, and Australia Endeavour Executive Award to University of South Australia. His research interests include soft computing, intelligent decision support systems, pattern recognition, medical prognosis and diagnosis, fault detection and diagnosis, condition monitoring, and manufacturing process optimization.

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HRDF Approved Training Provider (Category A)

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