



Universidade Estadual de Campinas
Faculdade de Engenharia Elétrica e de Computação
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Palestra

Evolving Fuzzy Models for Prediction, Control, and Classification

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During last few decades, *computational intelligence* has advanced significantly and in particular fuzzy rule-based and neuro-fuzzy models for prediction, control and classification. They have been applied in many areas, where the conventional, first principle models has limited applicability or failed to deliver, such as electrical load forecasting, biotechnological processes, behavior modeling, complex technological processes, systems of systems etc.

The challenge is to develop systems capable of higher level adaptation to the environment in which they operate and to the internal changes. A translation of the results from adaptive systems theory into the area of highly non-linear complex and interpretable models described by fuzzy rules augmented by the concept of model structure evolution forms an emerging area of *intelligent evolvable systems* that can be used for prediction, adaptive control, and classification in a changing, unknown and, possibly hostile, environment. Such systems should be able to grow, update and shrink their structure when necessary. Having this ability the *intelligent evolvable systems* will be capable of adapting their goals, strategy, and constraints while performing a task (during a routine operation).

The talk will concentrate on the problems and results the author encountered during last several years of research in this emerging area as well as on the approach to on-line identification of a particular type of fuzzy models – so called Takagi-Sugeno models including some applications to system modelling, forecasting, control, and classification.

LOCAL: Sala da Congregação da FEEC

DIA: 27 de setembro de 2005

Hora: 10:00 horas