ESAP – Coping with Unfamiliar Subjects

Text A, from an MSc Dissertation in Electronic Engineering

Conventional controllers, designed using the classical control theory, are well suited to control of linear processes whose exact model is known. However, the majority of physical systems usually contain non-linear relations that are difficult to model. Besides, in a number of cases, even when the available model is accurate enough, the exact system parameter values are difficult to obtain. Control structures based on artificial intelligence (AI), such as artificial neural networks (ANNs) and fuzzy logic, appear to be an advantageous solution for control of such processes.

ANNs are suitable when the knowledge, contained within the available data sets, needs to be generalised. Their main drawback is that they act in a manner of a black box. Fuzzy logic deals with problems as a human mind, trying to handle vagueness, imprecision and uncertainty in a robust manner. However, the pure fuzzy logic systems have a disadvantage of being extremely difficult to tune for high performance. Fortunately, ANNs and fuzzy logic are complementary techniques and the shortcomings of one of them can be overcome by advantages of the other one. If ANNs are combined with fuzzy logic, neuro-fuzzy systems with learning capability are obtained.

Task 1 – Answer these questions on Text B on the screen.

1) What kind of yupyups were they?

2) Where were the yupyups going?

3) Why?

4) How were they getting there?

5) Where was the reepkinni hiding?

6) What was the relationship between the yupyups?

7) Is strumbosting a good thing?

8) What is the relationship between "humt" and "kopfish"?

Task 2 –Answer these questions on Paragraph 1 of Text A

1. What is the structure of this paragraph?

2. What vocabulary is important for the students?

3. What grammar would you point out to students?

4. What aspects of academic style are featured?

Task 3 – Look at paragraph 2 again. What features could you use in class?

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Structure

Vocabulary

Grammar

Other Features