

EE4305 Fuzzy/Neural Systems for Intelligent Robotics

Assignment #2

Instructions:

1. The due date is 26/04/2021. Please submit the report to the submission folder in LumiNUS.
 2. Submit your technical paper as a PDF file. On top of the first page, provide your name and matriculation number.
 3. The technical paper should be the results of an individual work.
 4. The technical paper should not be longer than 15 pages, and no late submission will be accepted.
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It is known that fuzzy logic technology provides a way for computer to compute with “words”. These devices operate in a way akin to human reasoning, by gathering complex knowledge as they work, then applying that knowledge to their task. The results are products that are more “intelligent” and user-friendly than ever before.

Fuzzy logic has been implemented in shavers (which sense the length, thickness and density of hair and adjust the speed of the motor respectively), washing machines, dryers, cameras, trains, breaks, etc. The list is rapidly growing. Besides, fuzzy logic has also been applied to real time control applications. For example it has been implemented on a software level in conjunction with artificial neural networks and genetic algorithms. Researchers are today looking at possibilities of using fuzzy logic for pattern recognition, and other applications which generally require some knowledge based expert system.

In this assignment, students are required to carry out a literature review in order to write a technical paper regarding any application of fuzzy logic technology. This helps to demonstrate the students’ understanding in the subject of Fuzzy Logic beyond the normal lectures and tutorials. The technical paper must include specific description of the application, the input(s) and output(s) of the fuzzy system, the fuzzy rules and membership functions, as well as the advantages/disadvantages of the fuzzy system in such an application.