Neural Network

(20241209)

HW6 – Classification of industry process by ART-1

Classification of industrial process

- The behavior of an industrial process can be analyzed by taking into consideration several variables related to the phases of the process.
- There are ***10 different situations*** of the system behavior from ***16 status variables*** $\{x_1, x_2, \dots, x_{16}\}$.
- The purpose of applying ART-1 is that ***classifies*** and ***groups*** similar situations into classes.

Training set for the ART-1 network

	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}	x_{12}	x_{13}	x_{14}	x_{15}	x_{16}
Situation 1	0	1	0	1	1	0	1	0	1	1	0	1	1	1	1	1
Situation 2	1	0	1	0	1	1	1	1	1	1	1	0	1	0	0	0
Situation 3	1	0	1	1	1	1	1	0	1	1	0	1	1	0	1	1
Situation 4	1	1	1	0	1	0	1	0	1	1	1	1	0	1	0	0
Situation 5	0	0	1	1	1	1	1	1	0	1	1	0	0	0	0	1
Situation 6	1	1	0	1	0	0	1	0	1	1	0	1	1	1	1	1
Situação 7	1	0	1	0	1	1	0	1	1	1	1	0	1	1	1	0
Situação 8	1	0	1	1	1	1	1	0	1	1	0	1	1	0	1	1
Situação 9	0	1	1	0	1	0	1	0	1	1	0	1	0	1	0	1
Situação 10	0	0	1	1	1	1	1	1	0	1	1	0	0	0	0	1

作業內容

- 包含：
  - 程式碼說明：說明程式如何設計與實作方式
  - 執行結果：成果截圖
  - 測試資料：如投影片所附
  - 成果說明：說明不同初始number of neuron in $F^{(2)}$ layer、不同Vigilance parameter (ρ)的影響、顯示對應不同輸入資料的weight vector狀態(e.g. update/remove/add)、最終分類的結果
  - 心得：
- Deadline:
  - 12/16