

98-1 大葉大學 完整版課綱

基本資訊

課程名稱	類神經模糊系統	科目序號 / 代號	0455 / EDR5155
開課系所	電機工程學系博士班	學制 / 班級	研究所博士班1年1班
任課教師	吳幸珍	專兼任別	專任
必選修 / 學分數	選修 / 3	畢業班 / 非畢業班	非畢業班
上課時段 / 地點	(二)789 / H726	授課語言別	中文

課程簡介

Neuro-Fuzzy is the first course to focus on soft-computing – a concept which has direct bearing on machine intelligence. This course is to provide graduate student involved in fuzzy systems and neural-network systems with a comprehensive, well-organized, and up-to-date account of basic principles underlying the soft-computing integrated systems. Fuzzy sets and fuzzy logic are developed as a mean for representing, manipulating, and utilizing uncertain information and to provide a framework for handling uncertainties and imprecision in real world application while neural networks are developed to provide computational power, fault tolerance, and learning capability to the system.

課程大綱

- I. Fuzzy Set Theory
 1. Basics of fuzzy sets (Lin-2)
 2. Fuzzy relations (Lin-3)
 3. Fuzzy arithmetic (Lin-5)
 4. Fuzzy logic and approximate reasoning (Lin-6)
 5. Fuzzy logic control systems (Lin-7)
 6. Applications of fuzzy theory (Lin-8)
- II. Convolution
 7. Genetic algorithms (Lin-14)
- III. Neural Networks
 8. Artificial neurons, neural networks and architectures (Kumar-1,2,3)
 9. Geometry of binary threshold neurons and their networks (Kumar-4)
 10. Supervised learning I: perceptrons and LMS (Kumar-5)
 11. Supervised learning II: backpropagation and beyond (Kumar-6)
 12. Neural networks: a statistical pattern recognition perspective (Kumar-7)
 13. Radial basis function network (Kumar-8.2)
11. Final Exam.

基本能力或先修課程

無

課程與系所基本素養及核心能力之關連

- 3.1. 具有有效溝通，具備跨領域團隊合作及整合之能力。
- 3.2. 具有充分認知工程倫理重要性，認識時事議題、善盡社會責任。

成績稽核

教科書(尊重智慧財產權，請用正版教科書，勿非法影印他人著作)

書名	作者	譯者	出版社	出版年
無參考教科書				

參考教材及專業期刊導讀(尊重智慧財產權，請用正版教科書，勿非法影印他人著作)

書名	作者	譯者	出版社	出版年
無參考教材及專業期刊導讀				

上課進度		分配時數(%)				
週次	教學內容	講授	示範	習作	實驗	其他
1	Basics of fuzzy sets (Lin-2)	80	0	20	0	0
2	Fuzzy relations (Lin-3)	80	0	20	0	0
3	Fuzzy arithmetic (Lin-5)	80	0	20	0	0
4	Fuzzy logic and approximate reasoning (Lin-6)	80	0	20	0	0
5	Fuzzy logic and approximate reasoning(Lin-7)	80	0	20	0	0
6	heat exchanger, aircraft landing and pattern recognition	80	0	20	0	0
7	Least-squares methods for systems identification(Jang-5)	80	0	20	0	0
8	Derivative-based optimization(Jang-6)	80	0	20	0	0
9	Derivative-free optimization(Jang-7)	80	0	20	0	0
10	Geometry of binary threshold neurons and their networks (Kumar-4)	80	0	20	0	0
11	Supervised learning I: perceptrons and LMS (Kumar-5)	80	0	20	0	0
12	Supervised learning I: perceptrons and LMS (Kumar-5)	80	0	20	0	0
13	Supervised learning II: backpropagation and beyond (Kumar-6)	80	0	20	0	0
14	Supervised learning II: backpropagation and beyond (Kumar-6)	80	0	20	0	0
15	Neural networks: a statistical pattern recognition perspective (Kumar-7)	80	0	20	0	0
16	Neural networks: a statistical pattern recognition perspective (Kumar-7)	80	0	20	0	0
17	Radial basis function network (Kumar-8.2)	80	0	20	0	0
18	Final Exam.	0	0	0	0	100