

課程資訊 (Course Information)

科號 Course Number	11220EMIM500600	學分 Credit	3	人數限制 Class Size	30
中文名稱 Course Title	深度學習概論				
英文名稱 Course English Title	Introduction to Deep Learning				
任課教師 Instructor	賴尚宏(LAI, SHANG-HONG) 陳煥宗(CHEN, HWANN-TZONG) 江振國(CHIANG, CHEN-KUO) more information				
上課時間 Time	S2S3S4	上課教室 Room	GEN IV綜四223		

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此科目對應之系所課程規畫所欲培養之核心能力 Core capability to be cultivated by this course	
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課程簡述 (Brief course description)

简介深度學習的技術，包括各種具代表性的深度學習神經網路模型，如何進行模型的訓練，以及其相關的實際應用。另外，此課程將著重在實作深度學習的模型以及如何達到模型的訓練以解決實際的問題。

課程大綱 (Syllabus)

Course keywords:

人工智能, 深度學習, 神經網路模型, Artificial Neural Network, Deep Learning, Neural Network Model

● 教學方式(Teaching Method)

投影片授課 / 實例示範

● 教學進度(Syllabus)

Week 1: Basics of Machine Learning

Week 2: Artificial Neural Network and backpropagation

Week 3: Convolutional Neural Networks

Week 4: Transformers

Week 5: Deep Learning software frameworks

Week 6: Architecture Design Choices

Week 7: Sample Applications with CNNs

Week 8: Generative Adversarial Networks (GAN)

Week 9: Sample Applications with GAN models

Week 10: Recurrent Neural Network and LSTM

Week 11: Midterm Exam

Week 12: Deep Attention Learning

Week 13: Practical model training techniques

Week 14: Anomaly detection

Week 15: Domain Adaptation

Week 16: Federated learning

Week 17: Smart manufacturing

Week 18: Final project presentation

● 成績考核(Evaluation)

作業、考試、課程專題、課堂參與

● 可連結之網頁位址

<https://eeclasse.nthu.edu.tw/>