

國立台灣科技大學 114學年 第2學期 課程大綱

Spring 2026 NTUST Course Outline

授課教師：王靖維

Instructor:Ching-Wei Wang

課程名稱：進階電腦視覺與機器學習

Course Title : Advanced Computer Vision and Machine Learning

2026/5/6

課程代號： BE5048701 Course Code 學分數： 3 Credits	必選修：選修/半學年 Required/Elective: Elective/Half Yr. 先修課程： Prerequisites
節次教室： R2(TR-836) R3(TR-836) R4(TR-836) Time/Location	
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： 本課程將講授進階電腦視覺與機器學習理論與技術，提供學生從事影像分析的基石。 Course Objectives The key aim of this course is to equip students with advanced computer vision and machine learning knowledge necessary to become successful engineers or scientists.	
課程大綱： 1. Automatic Global Thresholding Algorithms (Binarization, Pixel Classification) Outline of Lectures 2. Automatic Local Thresholding Algorithms (Binarization, Pixel Classification) 3. Color Images, Spectral Techniques 4. Discrete Fourier Transform in 2D 5. Geometric Operations 6. Inception, ResNet, DenseNet 7. Transformers and Multi-Head Attention	
授課方式： 講授 Lecture：40% Method of Instruction 分組討論 Group discussion：15% 案例研討 Case study：15% 操做練習 Practical exercises：30% 講授 Lecture：N/A%	
教科書： Candidate journal list or a journal with IF>10: The selected paper must be published within 3 years. Textbooks Medical Image Analysis Nature Medicine Nature Methods Nature IEEE Trans on Medical Imaging IEEE TPAMI	
參考書目： References	

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Medical Image Analysis
Nature Medicine
Nature Methods
Nature
IEEE Trans on Medical Imaging
IEEE TPAMI

修課須知： Two TAs will be available.
Notice

評量方式： Two team presentations with course assignments.
Grading

備註說明： Requirement: English, Math and basic programming skills.
Notes