

人工智慧概論

Introduction to Artificial Intelligence

一、招生班別：人工智慧研究所碩士學分班

二、課程簡介：

課程簡介	This course will cover the different topics in AI including: ● Problem solving & search ○ State space & problem formulation ○ Search strategy ○ Adversarial search, utility ● Machine learning ○ Linear models ○ Kernels, clustering ○ Perceptron, neural network ○ Reinforcement learning ● Data-Driven AI ○ Data model & pipeline ○ Bias & variance ○ Regularization ● Advanced topics / applications
教學目標	This course will introduce the basic techniques for building artificial intelligence (AI) systems and how AI is applied to problems.
教學方法	● Lecture-based ● Project-based
成績考核	● Homework 作業 (including programming) ● Midterm 期中考 ● Final project presentation 期末專題報告
教科書	"Silicon Processing for the VLSI era Volume 3 - Submicron MOSFET" S. Wolf, Lattice Press
參考書(講義)	● AI: S. Russell and P. Norvig, Artificial Intelligence: A Modern Approach . 3rd Ed. ● ML ○ T. Hastie, R. Tibshirani and J. Friedman. The Elements of Statistical Learning . 2nd Ed., Springer, 2009. ○ L. Rosasco, Introductory Machine Learning Notes , University of Genoa, ML 2016/2017 lectures notes, Oct. 2016.
教師簡介	許永真／國立臺灣大學資訊工程學系教授／美國史丹佛大學計算機科學博士

三、收費標準：每學分每人 6000 元，3 學分，共 18000 元

四、上課時間：111 年 09 月 15 日~112 年 01 月 12 日每星期四 13:10~16:00

五、上課地點：長庚大學教室

六、授課大綱：如下

週次	上課日期	開始/結束 時間	時 數	授課大綱	授課教師
1	111/09/15	13:10-16:00	3hr	Introduction, Agents, State space	許永真
2	111/09/22	13:10-16:00	3hr	Search: Uninformed search, Heuristics, A*	許永真
3	111/09/29	13:10-16:00	3hr	AI Game playing, Adversarial search	許永真
4	111/10/06	13:10-16:00	3hr	Local Search, Constraint satisfaction problems	許永真
5	111/10/13	13:10-16:00	3hr	Intro to ML, Supervised-learning: classification, regression	許永真
6	111/10/20	13:10-16:00	3hr	Unsupervised-learning: clustering, kernels	許永真
7	111/10/27	13:10-16:00	3hr	Data pipeline, problems, and challenges	許永真
8	111/11/03	13:10-16:00	3hr	Perceptron, Optimization	許永真
9	111/11/10	13:10-16:00	3hr	Midterm (TBD)	許永真
10	111/11/17	13:10-16:00	3hr	Deep learning	許永真
11	111/11/24	13:10-16:00	3hr	Reinforcement learning & MDP	許永真
12	111/12/01	13:10-16:00	3hr	Probability, Uncertainty, Bayes Net	許永真
13	111/12/08	13:10-16:00	3hr	Markov chain, HMM	許永真
14	111/12/15	13:10-16:00	3hr	Applications: CV, NLP, Robotics	許永真
15	111/12/22	13:10-16:00	3hr	Applications: CV, NLP, Robotics	許永真
16	111/12/29	13:10-16:00	3hr	AI ethics, Safety, Fairness	許永真
17	112/01/05	13:10-16:00	3hr	Project presentation	許永真
18	112/01/12	13:10-16:00	3hr	(Buffer)	許永真

※以上師資與課程內容時間場地等僅供參考，若有異動以各系所公告為主。