HANYANG UNIVERSITY

Hanyang International Summer School

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Course Information	Class No.	TBA		Course Code	ISS1164 v	Credits	
	Course Name	AI Basics (AIX: Deep Learning)					
	Lecture Schedule	Tue-Fri / 1:00 PM - 4:00 PM					
	Course Description	This course introduces fundamental problems of AI/ML/DL models used in tackling following topics: 1. AI agents and (un)informed searching algorithm 2. Machine Learning techniques 3. Deep Learning basics 4. Up-to-date research topics					
	Course Objective	This course is designed to introduce the field of artificial intelligence and basic machine/deep learning techniques. Sample codes and hands-on exercises will help the student understand the theories behind the popular AI/ML techniques in practice. This course is designed for all majors; our goal is to give a friendly AI introduction to all students in general.					
	Prerequisite	None					
	Materials/Textbooks	Course materials will be given in class					

Evaluation	Attendance	10 %	Quiz	%
	Assignment	30 %	Mid-term Exam	20 %
	Presentation	%	Final Exam	%
	Group Project	20 %	Participation	10 %

	Evaluation Item	Ratio
Etc.	Midterm Exam (Take Home)	20 %
	Group/Individual Project with Oral Exam	20 %

Daily Lecture Plan	Week 1	Day 1	Intro to AI and agents, vacuum pyrobot
		Day 2	Dimensions of models, environment, SKT applications
		Day 3	States and searching, 8-puzzle
		Day 4	States and searching, RL example, BFS, DFS
	Week	Day 1	ML overview: feature engineering, titanic prediction

	2	Day 2	ML overview: (un)supervised learning, decision trees, PCA, K-mean
		Day 3	ML overview: other techniques
		Day 4	DL basics: Intro to neural networks
	Week 3	Day 1	Gradient descent, activation/loss functions, sentimental analysis example
		Day 2	Regularization, optimization techniques, tensorflow playground
		Day 3	Sample code exercise, torch, keras
		Day 4	Sample code exercise, torch lightning (image/text processing)
	Week 4	Day 1	Understanding cloud infra examples (AWS)
		Day 2	Trends in advanced topics: CNN, RNN, Transformers, and others.
		Day 3	Project: Students' oral exam on selected papers (KDD, paperwithcode, and etc.)
		Day 4	Graduation (NO class)