

50.035 Computer Vision

Schedule (2024)

NOTICE: Items are tentative, there will also be updates. Please check this calendar frequently

L1: Monday 9.30am to 11.30am; 2 hour @ 2.404

L2: Tuesday 8.30am to 10.30am; 2 hour @ 2.404

Practical session: Wednesday 9.30am to 10.30am; 1 hour @ TT10 TT9 (Building 1 level 4)

Quiz 1 (5% of total):

08-Oct, 2024 (Tuesday) in class (Week-04)

Quiz 2 (5% of total):

12-Nov, 2024 (Tuesday) in class (Week-09)

Exam (30% of total):

03-Dec, 2024 (Tuesday) in class (Week-12)

Quiz 1 (Week-04):

- Cover Week-1 to Week-3 materials, and Problem sets.
- The quiz is closed-book. You cannot refer to the course slides/notes. Only one A-4 cheatsheets (two sides) are allowed.

Quiz 2 (Week-09):

- Cover Week-1 to Week-8 materials, and Problem sets.
- The quiz is closed-book. You cannot refer to the course slides/notes. Only two A-4 cheatsheets (two sides) are allowed.

Exam:

03-Dec, 2024 (Tuesday) in class (Week-12)

Venue: To be decided

- Cover Week-1 to Week-11 materials, and Problem sets.
- The exam is closed-book. You cannot refer to the course slides/notes. Only three A-4 cheatsheets (two sides) are allowed.
- [Mid-term exam of past year](#) (Topics are not exactly the same as this year; for reference only).
- [Video recordings of past year](#) (Topics are not exactly the same as this year; lecture attendance is strongly recommended).

Grading:

Lab assignment and homework (two sets)	13%
1D Design Project	45%
Quiz (two quizzes)	10%
Exam	30%

Participation	2%
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Homework late penalty: 50% for late submission, and 0% if more than 1 week after the due date.

Important: Attending the exam, submission of 1d design project are the necessary conditions for passing the course.

Week	Topics	Material	Problem Set	1D Project	Quizzes and Exam
1	<ul style="list-style-type: none"> • Overview • Image filtering and convolution • Image classification • Softmax and Cross-entropy loss 	Week-01 Slides		1D Project release Project Example Check off 1: Students are required to form a team (4 students per team), decide the track and prepare a 0.5 page writeup for their project: initial project idea, background, and how Computer Vision is relevant.	

				<p>Due date for checkoff-1</p> <p>22 Oct 2024, 23:59</p> <p>Please submit the 0.5 page writeup to eDimension</p>	
2	<ul style="list-style-type: none"> • Deep neural networks • Convolutional neural networks (CNN) • Advanced network architectures • Numpy, OpenCV 	<p>Week-02 Slides</p> <p>Numpy and OpenCV tutorial in colab</p>	<p>Release Problem set 1</p> <p>Due date for Problem Set 1:</p> <p>Part 1: 09-Oct-2024 23:59</p> <p>Part 2: 16-Oct-2024 23:59</p>	<p>Team registration</p>	

3	<ul style="list-style-type: none"> • Gradient descent • Backpropagation • Gradient vanishing and exploding • Tensorflow • Colab 	Week-03 Slides			
4	<ul style="list-style-type: none"> • Attention in CV • Vision Transformer 	Week-04 Slides			Quiz 1
5	<ul style="list-style-type: none"> • Advanced Vision Transformer • Semantic segmentation 	Week-05 Slides			
6	<ul style="list-style-type: none"> • Object detection • R-CNN • Fast R-CNN • Faster R-CNN • Object detection with YOLO 	Week-06 Slides			

7	Break				
8	<ul style="list-style-type: none"> 1D project Check-off 			1D Project: Check-off 2 presentation Presentation order	
9	<ul style="list-style-type: none"> Generative Modeling Generative Adversarial Nets (GAN) 				Quiz 2
10	<ul style="list-style-type: none"> Diffusion Model Foundation Model 				
11	<ul style="list-style-type: none"> Advanced topic in Foundation Model Large Multimodal Model 				

12	<ul style="list-style-type: none"> • Revision • Exam 				Exam: 03-Dec, 2024 (Tuesday) in class (Week-12)
13	<ul style="list-style-type: none"> • Project Week 			Project presentation and demonstration Project presentation date/time: Project presentation order Due date for project report and code: 13-Dec, 2024 23:55	
14	<div>No Lessons</div>				

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