COURSE PROJECT

CS4186 COMPUTER VISION AND IMAGE PROCESSING

1. EXPECTATION

The objective of this project is a survey of at least 3 research papers (published in recent 4 years) for a specific problem/topic of computer vision and image processing. The survey must include a critical analysis of the strengths and limitations of different techniques. Through the project, you are expected to show knowledge (C grade), technical capability (B to A grade) and creativity (A grade) in any topic related to computer vision and/or image processing.

It is worth mentioning that the topic chosen in this course should NOT be identical with the topic in the course project of other courses. Code and demos are encouraged but not necessary for A grade.

2. REQUIREMENTS

2.1 BASIC (80%)

1. Introduce the overview of the selected topic.
2. Detail the algorithm behind.
3. Critical analysis of strengths and limitations of different techniques.
4. Envision/discussion on future research trends.

2.2 PRESENTATION (20%)

The project should be presented during the lecture/tutorial time. Each group has ~7 minutes. Due to the limited time, students should focus on algorithms in presentations. The presentation is scheduled for week 13 on Zoom. We will announce the details of the presentation schedule.

3. GROUPING

Each group can have 1~3 members. For non-single groups, the contribution of each member should be listed at the end of the report for reference.

4. SCHEDULE

Week	Import	n	Remark
13	16-Apr (We will announce the presentation time changes.)	ect presentation	During lecture/tutorial The slide should be submitted together with the final report.
15	30-April 2024 11:59pm	Final report submission	No less than 2500 words (the reference is not included when counting the words). Format: pdf file/word file

5. SUGGESTED TOPICS

- Computer vision-driven interactivity
- Multi-sensor (one of the sensors must be camera) analysis
- X detection and tracking (X = face, gesture or pose, vehicle)
- Facial expression recognition
- Semi-automatic image segmentation
- 3D volume estimation
- Image or video retrieval
- X recognition with deep learning (X = object, scene or activity)
- Image editing (e.g., seam carving)
- Domain-specific image processing (cultural heritage, artwork, painting)

(You may not follow these suggested topics, and you could choose your own preference topic.)

6. SUBMISSION

Group project information for scheduling the presentation: Please send your group project information to the TA: Yingwen ZHANG (email: ywzhang26-c

@my.cityu.edu.hk), containing the topic and team members (including student name and ID). Each group should select one representative to send the email. The deadline for collecting the group project information is Mar. 26, 2024, 23:59. We will announce the presentation schedule before Apr. 2, 2024 in Canvas-> Announceme

Reports/sli es should be submitted to Canvas->Assignment ->Course Pr ntative team member. The team members and contribution dicated in the report. The Generative AI (e.g., ChatGPT) is currently prohibited in this project.

7. PLAGIARISM

It is a serious fraud to plagiarize others' work (e.g. published papers). Students who committed plagiarism will be handled according to the global policy of university (http://www6.cityu.edu.hk/ah/). All suspected plagiarism cases will be reported to the disciplinary body of the University and not being handled in the course/departmental level.

Students, who plagiarize, as well as those who willfully lent out his/her work to others, will receive the same punishment. Confirmed plagiarism cases will result in disciplinary action, including but not limited to zero marks in course project.