Computer Vision

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M2R MoSIG Fall Semester 2020

Mid-Term Project

The objective for this project is to produce a report describing experimental performance evaluation for different techniques for face detection in images and face tracking in video sequences. This project is to be performed of teams of two students who will work together to produce a joint report. Project teams have considerable freedom concerning the techniques to be evaluated, the performance metrics to be reported, and the benchmark data to be used for evaluation. The project grade will be determined on a sliding scale based on the number of techniques evaluated, and the clarity and rigor of the evaluations. Creativity, insightfulness and experimental rigor will be rewarded.

Project team reports may be written in French or English and are to be submitted as a .pdf file to be sent by email to James Crowley and Yangtao Wang by 4 January 2021.

Grade	Criteria (max grade is 20)
8 - 10	Provide experimental performance evaluation for a face detection technique using the FDDB data sets available on the course web site, using metric such as Accuracy, Precision, Recall, computing time and ROC curves for different operating parameters. The chosen face detector may use color histograms, SVMs, SIFT, multi-layer perceptrons, Convolutional Networks or any other reasonable published techniques for face detection. If face detection code is from an outside source is used (e.g. downloaded from the web, found in OpenCV, provided by a friend), the source must be identified and the algorithm clearly described.
+1	Provide comparative performance evaluation for two (or more) different face detectors, and explain the difference in performance (+1 point for each additional face detector).
+1	Provide experimental performance evaluation using two or more published data sets and explain the difference in performance (+1 point for each additional data set).
+2	Implement and evaluate a system for detecting and tracking faces in video sequences and evaluate your system using the AVDIAR data sets.
+2	Provide comparative performance evaluation for two (or more) different face-tracking techniques, and explain the difference in performance (+2 points for each additional face tracker).
+2	Provide experimental performance evaluation for your face tracking(s) systems using two (or more) published data sets and explain the difference in performance (+2 point for each additional data set).
+2	Provide experimental performance evaluation for a body tracking system and use the detected body to initialize the face detection and tracking system.
+2	A surprising demonstration of the use of detection and tracking for some application.