MSA 8650 Computer Vision Project
License Plate Reader

Type:	Group project, Teams of 3
Due Date:	please refer to announcements in class and on iCollege
Deliverables:	1. LPR-recognition code, will be tested on new data set 2. Documentation paper 3. Single-slide presentation that captures all aspects of the project
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Data:

This dataset is GSU confidential and must not be shared with any person not enrolled in this class. Furthermore, any form of publication of the data set or any single image is prohibited.

The data set comprises 1839 images from a single license-plate-reader (LPR) over a period of several days. There are three files for each vehicle: The "context" image showing the vehicle, the "ir_patch" with the cropped license plate, and an XML file with metadata.

Examples of context and ir_patch images:

Note:

The data files are located on the cluster arc.insight.gsu.edu at:

`/data/project/msa8650f19/LPR/data_redatcted/`

Please, do not copy those files into your home directory. You may have to restart your Jupyter Hub server to activate your group credentials. Download the ZIP file from iCollege for use on your own computer.

Assigment:

I. Develop an image processing program that detects the bounding boxes of the vehicles' license plates in the context images. Use the meta data for validation. The algorithm should be able to define the rectangular area around the license plate at a similar level of accuracy as the original LPR system.
Evaluation Metric: Number of test samples where the complete license number is enclosed in the computed bounding box. The perfect score is 100%.

II. Develop a recognition algorithm to extract the license numbers (Vehicle Registration Number, VNR) from the ir_patch images. Use the meta data for validation. The original LPR system made a few mistakes. You should correct those mistakes; and validate against the corrected labels.
Evaluation Metric: Average of Levenshtein Edit Distance between actual and predicted VNR over test samples. The perfect score is 0.

Refrences:

- Computer Vision Library Open CV https://docs.opencv.org/master/d9/df8/tutorial_root.html
- Image Processing library scikit-image https://scikit-image.org
- Optical Character Recognition Tesseract https://github.com/tesseract-ocr/tesseract, (Python: https://pypi.org/project/pytesseract/)