Digital Image Processing (2023)

Final project

{Water Segmentation}

image/mask: training_dataset.zip

The task is to perform segmentation by using any suitable method for a set of 60 training images along with their corresponding masks.

In this project, you may use a conventional method or a deep learning-based method.

- If you use a conventional method, you need to develop a process that involves a proper feature extraction process, followed by a suitable pattern classification process based on the 60 training images.
- If you use a deep learning-based method, you need to choose a suitable model and learn or fine-tune the model using these 60 training images.

Digital Image Processing (2023)

Grading Policy

Final project will be graded by:

1. **Project content** (60%), based on your ***presentation video*** and your ***project report***.

   Scoring criteria

   - Novelty of your approach
   - Depth of your investigation

2. **Demo** (40%)

   Scoring criterion

   - Average IoU

     Around 10-20 test images will be used to evaluate your results. The score will be evaluated based on the Average Intersection over Union (IoU) scores of your output masks.

     IoU (Intersection over Union):

     $$\frac{Predicted\ Region \cap Ground\ Truth\ Region}{Predicted\ Region \cup Ground\ Truth\ Region}$$

Deadline:

- Online Check Point Report: ***2023/12/29~30***
- Online Demo: ***2024/1/11***
- Upload your project materials, including the link of your presentation video link, your presentation slides, you project report, and your codes: ***2024/1/12***

  Upload Format

  (i) Upload a 10-15 minute video to YouTube and include the video link in a text file. The text file is uploaded to E3 with the following format:

  [File Name] Teamxx_StudentID1Name1_ StudentID2Name2.txt

  (ex: Team00_123456789 小明_223456789_小美.txt)

  Remark: At the beginning of the video, please state your team number and individual names.

  (ii) Archive all the other materials in a zip file and upload the zip file to E3 with the following format and contents:

  [File Name] final_project_StudentID.zip (ex: Final_project_123456789.zip)

  Contents: (1) Final report in the format of .pdf.

  (2) Your codes with comments.

  (3) A ReadMe.txt file to describe how to run your program.

  (4) Your presentation slides in the format of .pptx

Reminder:

1. No reasons for delay and absence!
2. Late submission is not allowed.
3. You can use python, matlab, or C++ in the final project.