CSC 381 Computer Vision ( C++ )

Project 1.2: Threshold

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Soft copy: 02/01/2019

Hard copy: 02/05/2019

Algorithm Steps:

step 0: inFile1 <-- argv[1]

outFile1 <-- argv[2]

outFile2 <-- argv[3]

step 1: numRows, numCols, minVal, maxVal <-- read from inFile

step 2: thrValue <-- ask user from console

step 3: write numRows, numCols, 0, 1 to outFile1

step 6: process the inFile from left to right and top to bottom

// For easier reading use two loops: i for rows and j for column

pixel\_val <-- read from inFile1

if pixel\_val >= threshold value

outFile1 <-- write 1 follows by a blank

outFile2 <-- write 1 follows by a blank

else

outFile1 <-- write 0 follows by a blank

outFile2 <-- write 2 blanks

step 7: repeat step 6 until the inFile1 is empty

step 8: close all files

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Threshold to extract foreground objects in grey-scale image

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#include <fstream>

#include <iostream>

using namespace std;

class Threshold {

public:

int numRows;

int numCols;

int minVal;

int maxVal;

int threshold;

Threshold(ifstream &inFile) {

inFile >> numRows >> numCols >> minVal >> maxVal;

threshold = 0;

}

};

int main(int args, char \*\*argv) {

ifstream inFile1;

ofstream outFile1, outFile2;

Threshold \*thr;

int t = 0, p = 0;

inFile1.open(argv[1]);

if (inFile1.fail()) {

cout << "ERROR: cannot find \"" << argv[1] << "\"\n";

exit(1);

}

outFile1.open(argv[2]);

outFile2.open(argv[3]);

thr = new Threshold(inFile1);

cout << "Enter a threshold: ";

cin >> t;

while (t < thr->minVal || t > thr->maxVal) {

cout << "Enter a valid threshold: ";

cin >> t;

}

thr->threshold = t;

outFile1 << thr->numRows << " " << thr->numCols << " " << thr->minVal << " " << thr->maxVal;

for (int r = 0; r < thr->numRows; ++r) {

outFile1 << endl;

outFile2 << endl;

for (int c = 0; c < thr->numCols; ++c) {

inFile1 >> p;

if (p >= t) {

outFile1 << 1 << " ";

outFile2 << 1 << " ";

}

else {

outFile1 << 0 << " ";

outFile2 << " ";

}

}

}

inFile1.close();

outFile1.close();

outFile2.close();

return 0;

}

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