



Assignment 2: Image Enhancement

A. What to DO:

1. The general form of the log transformation function is $s=T(r)=c*\log(1+r)$, where 's' and 'r' are the output and input pixel values, and 'c' is the scaling constant. Implement **log transformation and power law transformation**. Use the image (fourierspectrum.pgm) to test the algorithms. Comment on the similarity/difference between log transformation and power-law transformation.
2. Apply the **histogram equalization** to grayscale images with contrast issues. Draw the histogram of the input and output images. Calculate the mean and standard deviation of the input and output images.

B. What to turn in:

- A zip file with all the necessary SOURCE code
- A written report (in pdf format) using the template including the following contents:
 - **Cover page** with your name, class title, class number, date, etc.
 - **"Abstract"** (no more than 300 words) summarizing what this project is about (objective), what you did, and what you found out in this project.
 - **"Result"** listing both the original images and the output images of the sampling and quantization effects. Make sure that there is captions for each image in the figure and parameters used to generate the result are elaborated in the caption.
 - **"Discussion"** section summarizing lessons learned, your experience working on the project, potential future work if given time, etc. Note that this should be a short paragraph, no more than 300 words.
 - **Source code** printout.
- Upload the zip file and project report to D2L.

C. Due Date is on D2L

Academic Misconduct: cheating, plagiarism, and other forms of dishonesty: [KSU Codes of Conduct](#)

Students are responsible for reading and understanding the academic honesty policy, learning to use materials ethically, asking for assistance when needed, reporting instances of academic dishonesty, and refusing to aid others in academic dishonesty. The University defines academic misconduct as any action or attempted action that may result in creating an unfair academic advantage for oneself or an unfair academic advantage or disadvantage for any other member or members of the academic community.

All student works (Submissions and Deliverables) will be checked through **D2L Turnitin** software to detect similarity/ plagiarism that produce five flags: **red, orange, yellow, and green, blue**. Students will be getting a **zero** immediately to any work flagged red or yellow through Turnitin report, while they will get credits to any work flagged **green** and **blue** (similarity score less than 25%). So, students are responsible for avoiding any academic misconduct such as cheating, plagiarism, fabricating results, and any other dishonest forms.

Originality Report Color Codes	
Color	Meaning
Red	75% - 100% potential plagiarism found.
Orange	50% - 74% potential plagiarism found.
Yellow	25% - 49% potential plagiarism found.
Green	One word -24% potential plagiarism found.
Blue	No potential plagiarism found.

The Code of Student Conduct defines cheating

Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials, that are prohibited or inappropriate in the context of the academic assignment in question. Here are some examples:

- [1] Copying or attempting to copy from others during an exam or on an assignment.
- [2] Communicating answers with another person during an exam.
- [3] Pre-programming a calculator or other personal electronic device to contain answers or using other unauthorized information for exams.
- [4] Using unauthorized materials, prepared answers, written notes, or concealed information during an exam.
- [5] Allowing others to do an assignment or a portion of an assignment for you, including the use of a commercial term-paper service.
- [6] Submitting the same assignment for more than one course without prior approval of all the instructors involved.
- [7] Collaborating on an exam or assignment with any other person without prior approval from an instructor.
- [8] Taking an exam for another person or having someone take an exam for you.

Plagiarism

Plagiarism is defined as the use of intellectual material produced by another person without acknowledging its source. Some examples:

- [1] Copying passages from works of others into one's homework, essay, term paper, or dissertation, without acknowledgement. Use of the views, opinions, or insights of another, without acknowledgement.
- [2] Paraphrasing another person's characteristic or original phraseology, metaphor, or other literary device, without acknowledgement.
- [3] An increasingly common form of plagiarism is copying and pasting papers or articles from the Internet, or simply purchasing prewritten papers from on-line paper mills. Hundreds of these sites have been identified. Fortunately, this sort of plagiarism is also increasingly easy to detect.

Solutions to Plagiarisms: Quoting, Paraphrasing, and Summarizing

- [1] Quotations reproduce a passage word for word.
 - [2] Paraphrases rephrase a passage in one's own words but retain all, or almost all, of the original ideas, structure, etc.
 - [3] Summaries also rephrase a passage in one's own words but in briefer form and retaining only the main ideas of the original.
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