الجامعة المصرية اليابانية للعلوم والتكنولوجيا

E-JUST

Egypt - Japan University of Science and Technology

エジプト日本科学技術大学

Department	Computer Science and Engineering
Date	Feb 28, 2025
Course Title	CSE 429: Computer Vision and pattern recognition
Instructor	Dr. Ahmed Gomaa

You are required to implement seam carving algorithm that scale down the images horizontally or vertically with the following requirements:

1- Use the following method to calculate energy in the image:

$$e_1 = \left| \frac{\partial}{\partial x} I \right| + \left| \frac{\partial}{\partial y} I \right|$$

2- You cannot use predefined functions for calculating the energy.
3- The algorithm should handle images with size up to 800x800 and capable of reducing its size to half.
4- You must generate two images: the resized image and visualization for the seams that removed by the algorithm.

You can make group of 3 members and have 3 weeks to submit the project.

Bonus:

As the algorithm may be slower any significant improvement in performance will be appreciated and may give you exemption to discussion.
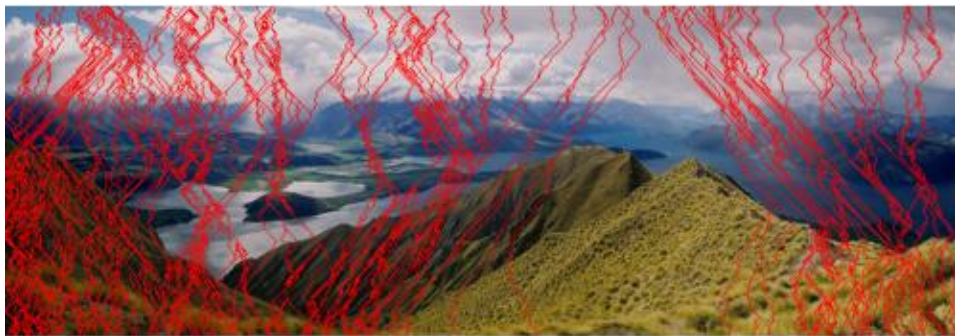
Example:

Figure 1 Input Image

Figure 2 resized image

Figure 3 Seams to remove