**Study of Seam Carving**

算法设计与分析Project

对seam carving算法的一些探究与改进

**参考内容：**

[1] Shai Avidan and Ariel Shamir, “Seam carving for contentaware image resizing,” ACM Transactions on Graphics (SIGGRAPH), vol. 26, no. 3, pp. 10, July 2007.

[2] Michael Rubinstein, Ariel Shamir, and Shai Avidan, “Improved seam carving for video retargeting,” ACM Transactions on Graphics (SIGGRAPH), vol. 27, 2008.

[3] Achanta, Radhakrishna, et al. Frequency-tuned salient region detection, in:CVPR 2009. IEEE Conference on Computer Vision and Pattern Recognition, 2009. IEEE, 2009.

[4] Achanta, Radhakrishna, Sabine Susstrunk. Saliency detection for contentaware image resizing, in: Sixteenth IEEE International Conference on Image Processing (ICIP), 2009. IEEE, 2009.

[5] Chen Y, Pan Y, Song M, et al. Improved seam carving combining with 3D saliency for image retargeting[J]. Neurocomputing, 2015, 151: 645-653.

[6]<https://www.researchgate.net/publication/228383984_Seam_Carving_with_Improved_Edge_Preservation>

**运行环境：**

Visual studio, opencv库

环境配置：参考链接<https://www.cnblogs.com/YiYA-blog/p/10296224.html>

**主要内容：**

1. 实现、测试并比较了梯度、熵、显著性、深度图等能量函数
2. 增加了对特殊物体（直线和人脸）的检测和保护，减少了在大幅度裁剪的情况下直线或人脸被扭曲的概率。
3. 利用不同的实现方式实现seam carving，并比较实现的效果和时间效率。

(具体操作方式见各文件夹内说明)