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Authors:

K. Thilagam

S. Karthikeyan

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Abstract

Seam Carving, the popular content aware image resizing technique removes seams of low energy iteratively without considering the global visual impact of the image. It is computation intensive. Sometimes seams unavoidable pass through the ROIs and distort their geometric shapes. The ROIs of low energy cannot sustain seam carving. We proposed a piecewise approach which can preserve the ROIs of low energy and minimize shape distortions. It can take advantage of parallel algorithms to improve speed. It is further optimized by using a saliency map to automatically identify the ROIs and segment the image, in addition with the interactive one. It is hybridized with a shift map editing approach to adjust structure deformations.

References

- Avidan. S and Shamir A. , 2007 "Seam carving for content-aware image resizing". ACM SIGGRAPH, 26(3).
- Yu-Shuen Wang, Chiew-Lan Tai, Olga Sorkine, Tong-Yee Lee. , 2008 "Optimised scale-and-stretch for Image Resizing" in ACM Transactions on Graphics, Vol. 27(5).
- Liu, F. , And Gleicher, M. , 2005 "Automatic Image Retargeting with Fisheye-View Warping. " in ACM UIST, 153–162.

- Thilagam. K and Karthikeyan. S, 2011. "An Efficient Method For Content Aware Image Resizing Using PSC", in International Journal of Computer Technology and Applications, Vol 2(4), 807-812,.
- Pritch, Y. , Kav-Venaki, E. , and Peleg, S. , 2009. "Shift-map image editing," in IEEE International Conference on Computer Vision, 151–158.
- Sunghyun Cho, Hanul Choi, Yasuyuki Matsushita, and Seungyong Lee, 2009. "Image Retargeting Using Importance Diffusion", in IEEE International Conference on Image Processing, 977-980.
- Itti,L. , Koch,C. , & Niebur, E, 1998. "A Model of saliency based visual attention for rapid scene analysis", in IEEE Transactions on Pattern Analysis and Machine Intelligence, 20,1254-1259.
- J. Harel, C. Koch, and P. Perona, 2006. "Graph-Based Visual Saliency", Proceedings of Neural Information Processing Systems (NIPS).
- Alex Mansfeld, Peter Gehler, Luc Van Gool and Carsten Rother, 2010. "Visibility Maps for Improving Seam Carving", European Conference on Computer Vision (ECCV).
- Sushil Subramanian, Kundan Kumar, Bibhu Prasad Mishra, Animesh Banerjee and Debdutta Bhattacharya, 2008. "Fuzzy Logic based Content Protection for Image Resizing by Seam Carving" in IEEE Conference on Soft Computing in Industrial Applications.
- Yanwen Guo, Feng Liu, Jian Shi, Zhi-Hua Zhou, and Michael Gleicher, 2009. "Image Retargeting Using Mesh Parametrization", IEEE Transactions on Multimedia, Volume 11 (5).
- Dong Wang, Xuhong Tian, Yun Liang, Xinchun Qu, 2010. "Saliency-driven Shape Preservation for Image Resizing", Journal of Information & Computational Science 7(4) 807–812.
- Guo-Xin Zhang¹ Ming-Ming Cheng, Shi-Min Hu, Ralph R. Martin, 2009. "A Shape-Preserving Approach to Image Resizing", Computer Graphics forum(online).
- Wolf, L. , Guttman, M. , And Cohen-Or, D. 2007. "Nonhomogeneous content-driven video-retargeting. " in Proceedings of the Eleventh IEEE International Conference on Computer Vision (ICCV '07), 1–6.
- Renjie Chen, Daniel Freedman, Zachi Karni, 2010, "Content-Aware Image Resizing by Quadratic Programming" in IEEE Conference on Computer Vision and Pattern Recognition Workshops, pg1-8,.
- Michael Rubinstein , Shamir, Shai Avidan 2009. "Improved Seam Carving for Video Retargeting" in ACM Trans. Graph. 27, 3
- Domingues. D, Alahi. A, and Vanderghyest. P, 2010. "Stream carving: An adaptive seam carving algorithm", IEEE Conference on Image Processing, Pg: 901-904.
- Jacob Stultz, Prof Alan Edelman, "Seam Carving: Parallelizing a novel new image resizing algorithm", Project Report (Online)
- Chen-Kuo Chiang Shu-Fan Wang Yi-Ling Chen Shang-Hong Lai, 2009. "Fast JND-Based Video Carving With GPU Acceleration for Real-Time Video Retargeting". In IEEE Transactions on Circuits and Systems for Video Technology, Volume: 19(11), P: 1588-1597.
- Dong W. , Zhou N. , Paul J. -C. , Zhang X, 2009. "Optimized image resizing using seam carving and scaling", ACM Trans. Graph. 28, (5) Pg 125

- Rubinstein M. , Shamir A. , Avidan S, "Multioperator media retargeting"; ACM Trans. Graph. 28, 3 (2009), 23
- Weiming Dong, Xiaopeng Zhang, Ning Zhou, Jean-Claude Paul, 2010. "Fast Multi-Operator Image Resizing"; LIAMA Technical Report 2009. Volume 29 (2).
- Vidya Setlur, Saeko Takagi, Ramesh Raskar, Michael Gleicher, and Bruce Gooch. 2005 "Automatic image retargeting";. In International Conference on Mobile and Ubiquitous Multimedia.
- Vidya Setlur, Tom Lechner, Marc Nienhaus, Bruce Gooch, 2007 "Retargeting Images and Video for preserving Information Saleicy"; in IEEE Compute Graphics and Applications.

Index Terms

Computer Science

Image Processing

Keywords

Opssc - Optimized Piecewise Seam Carving Roi – Region Of Interest Saliency Map Shift Map