Illustrative Visualization: Photic Extremum Lines

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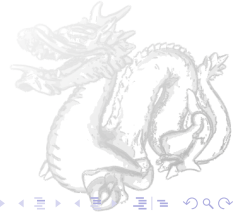
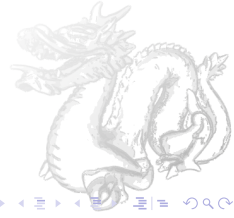
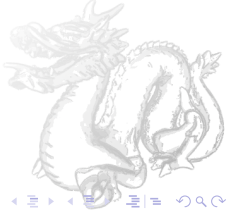


Outline

Introduction

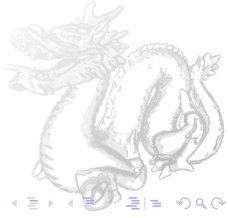


Related Work



Related Work

2007 Xie et al. "An Effective Illustrative Visualization Framework Based on Photic Extremum Lines (PELs)"

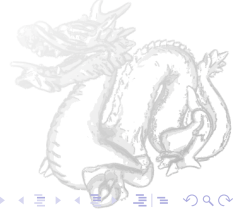


Related Work

2007 Xie et al. "An Effective Illustrative Visualization Framework Based on Photic Extremum Lines (PELs)"

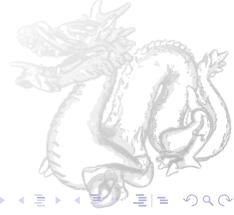
2010 Zhang, He, and Seah "Real-Time Computation of Photic Extremum Lines (PELs)"

Background

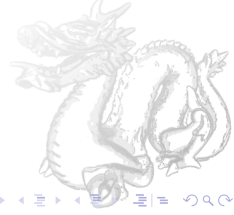


Concept

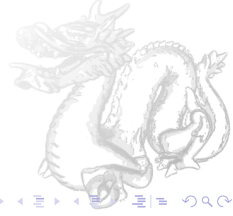
Algorithm



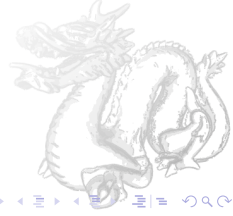
Results



Conclusions



Thank you for Your Attention!



References

(1) Xuexiang Xie et al. "An Effective Illustrative Visualization Framework Based on Photic Extremum Lines (PELs)". In: *IEEE transactions on visualization and computer graphics* 13 (November 2007), pp. 1328–1335. DOI: 10.1109/TVCG.2007.70538.

(2) Long Zhang, Ying He, and Hock Seah. "Real-Time Computation of Photic Extremum Lines (PELs)". In: *The Visual Computer* 26 (June 2010), pp. 399–407. DOI: 10.1007/s00371-010-0454-x.

(3) Douglas DeCarlo et al. "Suggestive Contours for Conveying Shape". In: *ACM Trans. Graph.* 22 (July 2003), pp. 848–855. DOI: 10.1145/1201775.882354.

(4) Tobias Isenberg et al. "A Developer's Guide to Silhouette Algorithms for Polygonal Models". In: *Computer Graphics and Applications, IEEE* 23 (August 2003), pp. 28–37. DOI: 10.1109/MCG.2003.1210862.

(5) Szymon Rusinkiewicz. "Estimating Curvatures and Their Derivatives on Triangle Meshes". In: October 2004, pp. 486–493. ISBN: 0-7695-2223-8. DOI: 10.1109/TDPVT.2004.1335277.

(6) Nelson Max. "Weights for Computing Vertex Normals

(7) Shuangshuang Jin, Robert Lewis, and David West. "A Comparison of Algorithms for Vertex Normal Computation". In: *The Visual Computer* 21 (February 2005), pp. 71–82. DOI: 10.1007/s00371-004-0271-1.

(8) Long Zhang et al. "Real-Time Shape Illustration Using Laplacian Lines". In: *IEEE transactions on Visualization and Computer Graphics* 17 (July 2011). DOI: 10.1109/TVCG.2010.118.

(9) Michael Kolomenkin, Ilan Shimshoni, and Ayellet Tal. "Demarcating Curves for Shape Illustration". In: *ACM Trans. Graph.* 27 (December 2008), p. 157. DOI: 10.1145/1457515.1409110.

(10) Szymon Rusinkiewicz, Michael Burns, and Douglas DeCarlo. "Exaggerated Shading for Depicting Shape and Detail". In: *ACM Trans. Graph.* 25 (July 2006), pp. 1199–1205. DOI: 10.1145/1179352.1142015.

(11) Gordon Kindlmann et al. "Curvature-Based Transfer Functions for Direct Volume Rendering: Methods and

Previous Work