



Research from Rensselaer Polytechnic Institute Has Provided New Information about Computer Graphics



Computer Weekly News

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By a News Reporter-Staff News Editor at Computer Weekly News -- Fresh data on Computer Graphics are presented in a new report. According to news originating from Troy, New York, by VerticalNews correspondents, research stated, "We present a novel approach for fitting a geometric shape in images. Similar to active shape models and active contours, a force field is used in our approach."

Our news journalists obtained a quote from the research from Rensselaer Polytechnic Institute, "But the object to be detected is described with a geometric shape, represented by parametric equations. Our model associates each parameter of this geometric shape with a combination of integrals (summations in the discrete case) of the force field along the contour. By iteratively updating the shape parameters according to these integrals, we are able to find the optimal fit of the shape in the image. In this paper, we first explore simple cases such as fitting a line, circle, ellipse or cubic spline contour using this approach. Then we employ this technique to detect the cross-sections of subarachnoid spaces containing cerebrospinal fluid (CSF) in phase-contrast magnetic resonance (PC-MR) images, where the object of interest can be described by a distorted ellipse. The detection results can be further used by an s-t graph cut to generate a segmentation of the CSF structure. We demonstrate that, given a properly configured geometric shape model and force field, this approach is robust to noise and defects (disconnections and non-uniform contrast) in the image."

According to the news editors, the research concluded: "By using a geometric shape model, this approach does not rely on large training datasets, and requires no manual labeling of the training images as is needed when using point distribution models."

For more information on this research see: The active geometric shape model: A new robust deformable shape model and its applications. *Computer Vision and Image Understanding*, 2012;116(12):1178-1194. *Computer Vision and Image Understanding*

can be contacted at: Academic Press Inc Elsevier Science, 525 B St, Ste 1900, San Diego, CA 92101-4495, USA. (Elsevier - www.elsevier.com; Computer Vision and Image Understanding - www.elsevier.com/wps/product/cws_home/622809)

The news correspondents report that additional information may be obtained from Q. Wang, Rensselaer Polytechnic Inst, Dept. of Elect Comp & Syst Engn, Signal Anal & Machine Percept Lab, Troy, NY 12180, United States.

Keywords for this news article include: Troy, New York, United States, Computer Graphics, North and Central America

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