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MESA (Mechatronics, Embedded Systems and Automation) Lab

Presents

A Research Seminar at The

Applied Fractional Calculus (AFC) Workshop Series

Date/Time/Place: 05/05/2014, 4-6PM, MESA Lab (Room 820), 4225 N. Hospital Rd., Atwater, CA 95301. T: 209-2284398

Title: A Novel Fractional Order Canny Operator for Texture Images

Abstract:

Image edge contains important visual perception information, which plays an important role in the further foundation of image understanding and scene perception. For texture image, the typical edge detecting algorithm is difficult to extract the effective edge, aimed at this problem, we improve the canny algorithm, which is representative and has better detection effect. We propose a new canny algorithm based on fractional calculus. The proposed method proceeds from the classical Grümwald-Letnikov(G-L) fractional order differential definition, designing a new edge detecting mask based on fractional calculus, the quantitative relation between the edge-detecting capability and parameters(α and M) is shown by the experiment, which can guide one to choose more idea parameters and get satisfied edge image. Finally, we compare the proposed method with the typical edge detecting algorithm and the method based on the Riemann-Liouville(R-L) fractional calculus. The experiment results demonstrate that the proposed method is more robust and accurate.

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Speaker's short biography (with photo):

Guimei Zhang received the master degree from Northwestern Polytechnical University China, in2004, and Ph.D degree in 2006, her major is computer vision. She is currently a visitor scholar with advanced image processing in UC Merced. Her currently research interests include computer vision, image processing and pattern recognition.