

## عنوان مقاله:

Trainable fourth-order partial differential equations for image noise removal

## محل انتشار:

مجله ایرانی آنالیز عددی و بهینه سازی، دوره 11، شماره 2 (سال: 1400)

تعداد صفحات اصل مقاله: 26

## نویسندگان:

N. Khoeiniha - *Department of Applied mathematics, Faculty of Mathematical Sciences, Tarbiat Modares University, Tehran, Iran*

S.M. Hosseini - *Department of Applied mathematics, Faculty of Mathematical Sciences, Tarbiat Modares University, Tehran, Iran*

R. Davoudi - *Department of Applied mathematics, Faculty of Mathematical Sciences, Tarbiat Modares University, Tehran, Iran*

## خلاصه مقاله:

Image processing by partial differential equations (PDEs) has been an active topic in the area of image denoising, which is an important task in computer vision. In PDE-based methods for unprocessed image processing, the original image is considered as the initial value for the PDE and the solution of the equation is the outcome of the model. Despite the advantages of using PDEs in image processing, designing and modeling different equations for various types of applications have always been a challenging and interesting problem. In this article, we aim to tackle this problem by introducing a fourth-order equation with flexible and trainable coefficients, and with the help of an optimal control problem, the coefficients are determined; therefore the proposed model adapts itself to each particular application. At the final stage, the image enhancement is performed on the noisy test image and the performance of our proposed method is compared to other PDE-based models.

## کلمات کلیدی:

Partial differential equations, Image processing, Image denoising, optimal control

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1295444>

