INTISARI

Algoritma *Kernel Least Mean Square* (KLMS) untuk Menyelesaikan Persamaan Diferensial Biasa Orde Satu dan Dua

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Pada penelitian ini dibahas tentang penyelesaian persamaan diferensial biasa orde satu dan dua dengan algoritma *kernel least mean square* (KLMS). Algoritma KLMS merupakan gabungan dari algoritma *least mean square* (LMS) dan algoritma kernel. Penelitian ini menggunakan jenis fungsi kernel *Gaussian radial basis* dan fungsi kernel polinomial. Solusi *trial* persamaan diferensial ditulis menggunakan struktur KLMS. Kemudian didefinisikan fungsi *error*. Parameter dari model KLMS diperoleh dengan meminimalkan fungsi *error*. Setelah itu, parameter dari model KLMS disubtitusi ke solusi *trial*. Keakuratan dari metode ini diilustrasikan dalam beberapa contoh.

Kata Kunci : persamaan diferensial biasa, *kernel least mean square*, *least mean square*, kernel.

ABSTRACT

Kernel Least Mean Square (KLMS) Algorithm for Solving First and Second Order Ordinary Differential Equations

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In this research, we discussed about kernel least mean square (KLMS) algorithm for solving first and second order ordinary differenrial equations. The KLMS algorithm was a combination of least mean square algorithm and kernel algorithm. This research used Gaussian radial basis kernel function and polynomial kernel function. A trial solution of the ordinary differential equation was written by the KLMS structure. Then, defined the error function. The parameters of KLMS model were obtained by minimizing the error function. After that, the parameters of KLMS model were replaced in the trial solution. The accuracy of the method was illustrated by solving several problems.
Keywords : ordinary differential equation, kernel least mean square, least mean square, kernel.