عنوان مقاله:

A Smoothing Algorithm based on Impulse Response for GPS Data Processing

محل انتشار:

اولین کنفرانس داده کاوی ایران (سال: 1386)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

An efficient spatial smoothing algorithm for filtering data while preserving spatial detail is obtained using the system function (impulse response) of the sensor. In contrast to the normal procedure for determining the filter coefficients for an arbitrary system functions, this technique does not involve the use of Fourier transforms. This paper uses from collected positioning and timing actual data for evaluating the performance of the algorithm. A simulator is designed and developed for this purpose. The spatial filtering coefficients are obtained analytically for the frequently applicable Gaussian system function. The efficiency of this algorithm is illustrated by filtering simulation, logs and spectral data. For real-time smoothing of data, a filter length of 4 times the vertical resolution is required. The experimental tests results on collected real data emphasize that positioning and timing RMS errors reduce to less than 0.4m and 65nsec, respectively.

کلمات کلیدی:

GPS Data Processing, Smoothing, Impulse Response

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