Tohoku Univ. Technology

Structure-Aware Temporal Bilateral Filter

Highly Precise Noise Filter for Time-Series Data

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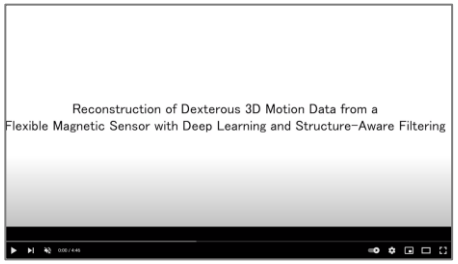


Overview

Time-Series data such as motion data has several types of noise in general.

Various nonlinear filters have been proposed in image processing for noise reduction. However, still it is difficult to balance both high precise noise reduction and not disrupting data portion which is important to keep original data structure.

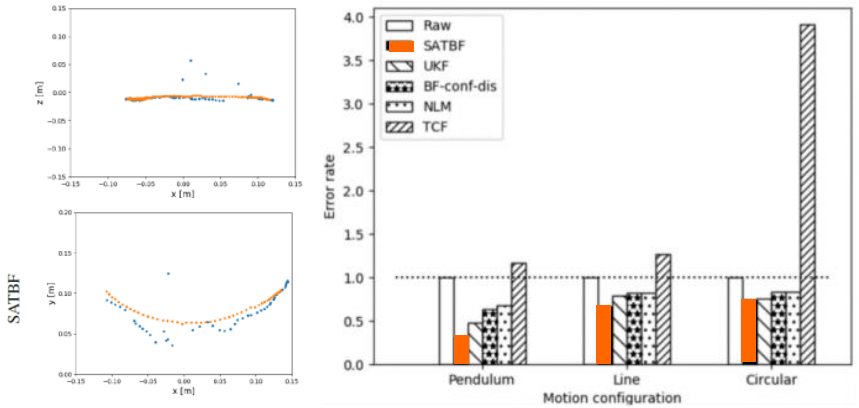
This invention is a kind of non-linear special filtering, named Structure-aware Temporal Bilateral Filter(SATBF).

SATBF enables highly precise noise reduction without disrupting essential structure of the original data.

Related Works

[1] Jiawei Huang et. al.(2020), Reconstruction of Dexterous 3D Motion Data from a Flexible Magnetic Sensor with Deep Learning and Structure-Aware Filtering, DOI Bookmark: 10.1109/TVCG.2020.3031632 x

SATBF shows the highest denoise performance



Left : Comparison of motion tracking result
(Light Blue : Raw data, Orange : After Filtered)

Right : Comparison with other existing filters

Product Application

- ☐ Motion Sensor
- ☐ Image Processing

IP Data

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