Review of: "Pulse Amplitude Measurement Using Low Sampling ADC and Interpolation Technique"

Niveen Farid[1]

1 National Institute of Standards

The paper investigates using interpolation techniques to improve the accuracy of pulse amplitude measurement with a low-resolution ADC.

In this article, authors compare seven interpolation methods: Nearest Neighbor, Linear, Cubic, Lagrange's, Newton-Raphson, Whittaker-Shannon, and Neville's Algorithm.

They evaluate these methods using hardware resources on an FPGA, Mean Square Error, Mean Absolute Deviation. They suggest that Lagrange's interpolation offers a good balance between accuracy and hardware resources used in amplitude measurement with low-resolution ADCs.

However, the study uses only Gaussian pulses for evaluation, while performance with other pulse shapes might differ.

Also, the analysis is specific to the A3PE1500 FPGA, so authors need to show whether the results can be generalized. They need also to discuss the impact of interpolation methods on processing speed. This could be important for real-time applications. Otherwise, they can assume it is a limitation of the study.

Authors need to comment on whether noise might affect the performance of the different interpolation techniques.