Physics - Geophysics; Study Data from University of Texas Austin Provide New Insights into Geophysics (Streaming prediction-error filters)

289 words
4 June 2024
Physics Week
PHYWK
674
English
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2024 JUN 4 (VerticalNews) -- By a News Reporter-Staff News Editor at Physics Week -- New study results on geophysics have been published. According to news reporting out of Austin, Texas, by VerticalNews editors, research stated, "Prediction-error filters (PEFs) are essential in seismic deconvolution and other geophysical estimation problems."

The news editors obtained a quote from the research from University of Texas Austin: "We show that non-stationary multidimensional PEFs can be computed in a streaming manner, where the filter gets updated incrementally by accepting one new data point at a time. The computational cost of estimating a streaming PEF reduces to the cost of a single convolution."

According to the news editors, the research concluded: "In other words, the cost of PEF design while filtering equals the cost of applying the filter. Moreover, the non-linear operation of finding and applying a streaming PEF is invertible at a similar cost, which enables a fast approach to missing data interpolation."

For more information on this research see: Streaming prediction-error filters. GEOPHYSICS, 2024. The publisher for GEOPHYSICS is Society of Exploration Geophysicists.

A free version of this journal article is available at https://doi.org/10.1190/geo2023-0646.1.

Our news journalists report that additional information may be obtained by contacting Sergey Fomel, University of Texas Austin, Jackson School of Geosciences, Bureau of Economic Geology, Austin, Texas, United States. Additional authors for this research include Jon Claerbout.

Keywords for this news article include: University of Texas Austin, Austin, Texas, United States, North and Central America, Geophysics.

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Document PHYWK00020240604ek64000c1