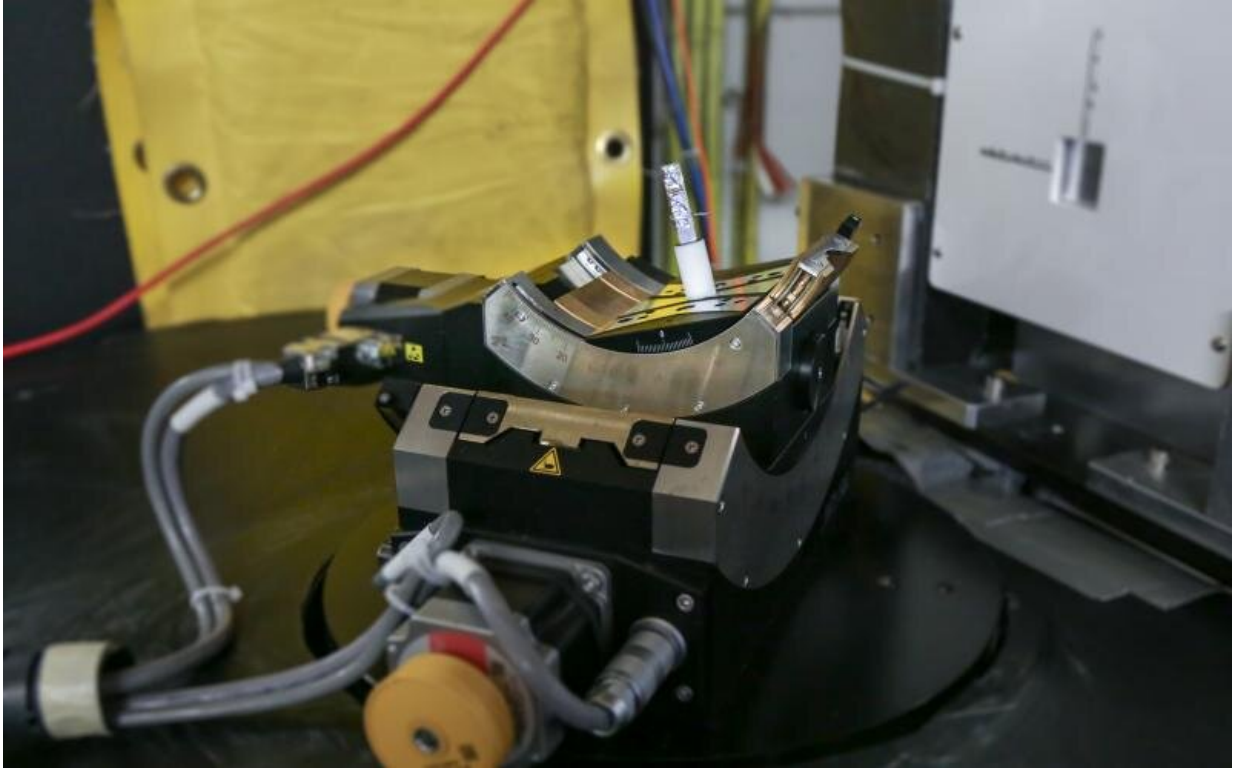


Automating neutron experiments with AI

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The AI-driven HyperCT platform has three primary points of articulation that can rotate a sample in almost any direction, eliminating the need for human intervention and significantly reducing lengthy experiment times. Credit: Genevieve Martin, ORNL/U.S. Dept. of Energy

Oak Ridge National Laboratory researchers are developing a first-of-its-kind artificial intelligence device for neutron scattering called Hyperspectral Computed Tomography, or HyperCT. The fully

automated, AI-driven platform can rotate a sample in almost any direction, eliminating the need for human intervention and significantly reducing lengthy experiment times.

The design enables scientists using neutron scattering, a technique that measures [atoms](#) inside materials, to complete characterizations of samples without pauses for adjustments. The AI software determines the optimal angles to measure based on a sample's shape, greatly reducing the amount of unnecessary data that could slow down experimental results.

"With only a few input parameters, HyperCT will give us more accurate data roughly four times faster than conventional methods," said ORNL's Hassina Bilheux.

Once developed, the technology can be used on any [neutron scattering](#) instrument, which will significantly increase the number of experiments and improve the quality of scientific data that only neutrons can provide.

Provided by Oak Ridge National Laboratory

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