

- By leveraging the high parallelizability of the transformer architecture, this proof-of-concept demonstrates real-time damage detection and localization in offshore wind turbine jackets.
- The methodology's 99.96 % accuracy and millisecond-scale inference support its integration into continuous SHM systems, enabling predictive maintenance.
- Early identification of cracks and missing bolts promises reduced downtime, lower O&M costs, and extended turbine lifespan.