

## Technology Transfer Track Posters

# AI Models for processing and interpreting Phased-Array Ultrasonic Testing (PAUT) data

The AI models were designed to detect welding defects in the manufacturing process of the ITER Vacuum Vessel. The prediction obtained is presented in a way so that a human expert can confirm the potential weld defects identified.

The major benefit of this technology is that its successful application would reduce time and operational costs significantly, as well as improving Early Data Analysis during the manufacturing process. The implementation of the models indicated would allow for decreasing the processing and interpretation time of PAUT output from a week to just several minutes, providing prompter data that will help to take informed decisions.

The results obtained with these AI models indicate that they aim to be a breakthrough approach in use cases where a big amount of PAUT output needs to be processed, for example the manufacturing of pressure vessels. Given that the output prediction provided by these models is much shorter than that of human interpretation, the use of this tool should save at least 95% of the time taken by a human in a regular evaluation.

### Benefits of the technology:

- Reduces the time and costs required for processing PAUT output and minimizes human error.
- The AI models are trained on historic data and can be used to learn from experience and help improve Quality Control.
- The AI models are tested for PAUT data generated from ITER Vacuum Vessel welds that use 316LN-IG stainless steel, developed for applications that require high resistance and good weldability.

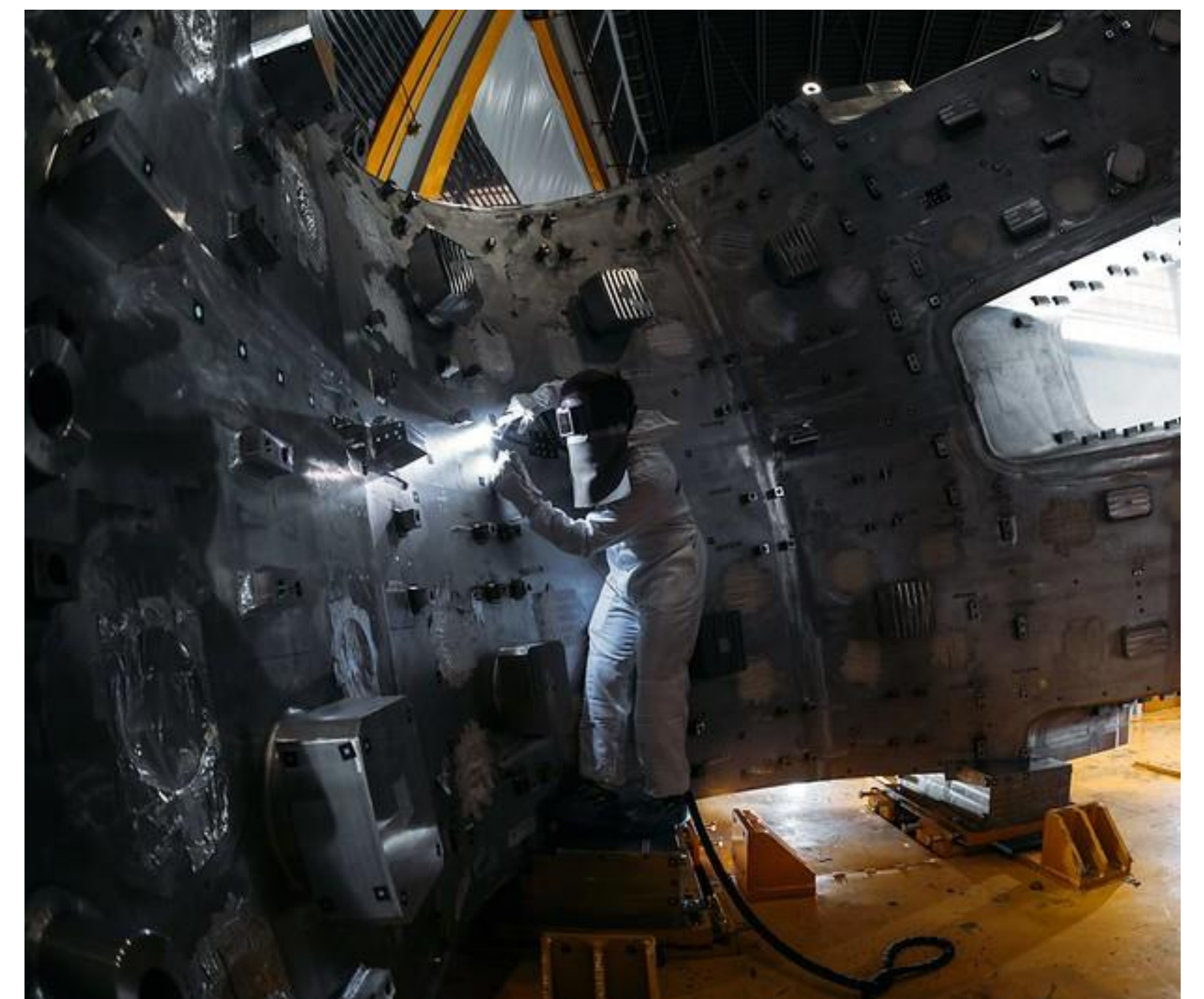
### Application Areas:

- Nuclear; Aeronautics; Railway; Aerospace; maintenance of Oil and Gas facilities

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