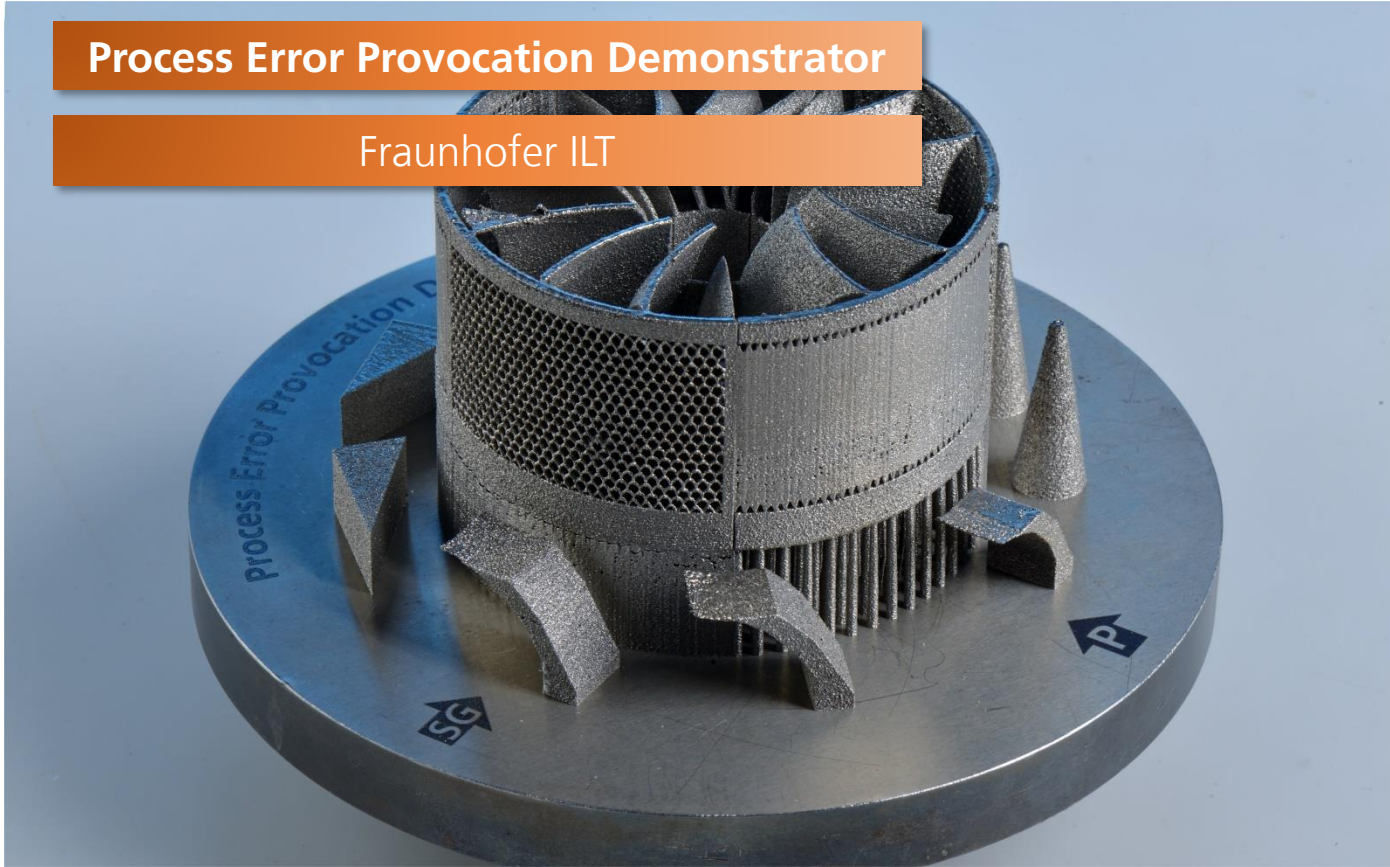


# Process Error Provocation Demonstrator

Fraunhofer ILT



Previous approaches for the detection of component defects in LPBF are mainly based on the detection of the radiation emitted from the process zone, whereby process errors and defects in the manufactured component are indirectly deduced from the sensor signals. This presentation describes a novel defect detection approach in which a high-resolution line scan camera is used to directly record the quality of the powder layer before exposure and the material layer produced after exposure of each layer. The images from the line scan camera are analyzed using a pre-trained deep convolutional neural network so that component defects caused by spatter deposits, geometric deviations and coating defects in particular, can be detected with an accuracy of up to 99%. This method contributes to quality assurance in LPBF, whereby the combination of the line scan camera images and the sensor signals of the process emission (multi-sensor fusion) can lead to an expansion of the detectable defects and an increase in the reliability of defect detection, thus avoiding the cost-intensive downstream quality control by NDT.

## More information at the FhG forum:

- 📅 Donnerstag, 16. Mai 2024
- 🕒 13:35 - 14:05
- 📍 CongressCenter, Panoramasaal, 3 OG

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