

Detection method of fine-tuning capacitor

What is capacitive sensing tuning?

Tuning is the process of determining the optimum values for set of capacitive sensing parameters for robust and reliable performance under various environmental conditions and for different mechanical constructions of the interface. This demands a thorough understanding of how a capacitive sensing system behaves under various conditions. Figure 8.

What is the future of miniature capacitor defect detection?

In summary, the field of miniature capacitor defect detection is rapidly evolving, with deep learning technologies at the forefront. Advances in network optimization, feature fusion techniques, and regularization methods have significantly improved detection efficiency and accuracy.

How can a capacitive sensor detect a particle flow?

In the context of sensing, the detection of this frequency modulation will enable particle counting. This dynamic behaviour of the capacitive sensor based on the particle flow can be sensed using an integrated phase-locked loop (PLL) demodulator in conjunction with the sensor embedding oscillator circuit.

What are the advances in capacitor failure analysis?

Advancements in failure analysis have been made in root cause determination and stress testing methods of capacitors with extremely small (approximately 200 nm) defects. Subtractive imaging has enabled a non-destructive means of locating a capacitor short site, reducing the FIB resources needed to analyze a defect.

How is micro-capacitor defect detection performed?

In assessing the performance of micro-capacitor defect detection, we considered several metrics: Precision: This is the product of the number of successfully discovered defects, or true positive detections (TP), and the total number of false positives (FP), or occurrences of false positives that were mistakenly labeled as defects.

How did the OEM test the break-down of capacitors?

The OEM tested the break-down of the capacitors using test structures that were not made with the same design and did not include the seams. Therefore, stress test boards were developed to test a total of 192 undamaged devices in parallel.

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In this report we propose a sensor architecture and a corresponding read-out technique on silicon for the detection of dynamic capacitance change. This approach can be applied to rapid particle counting and single particle sensing in a fluidic system.

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A self-supervised feature learning approach to learn a feature encoder to model the MSH data and fine-tuning is used to obtain the model to detect the plate shape quality. Expand 5

The capacitive method, a classic non-contact method, employs a sensing electrode configuration to detect changes in liquid level height through capacitance variation. This method offers a simple structure, low cost, and no liquid contamination. T. Islam et al. proposed an improvement to the liquid level sensing sensitivity by ...

power factor correction by fine tuning of graded capacitors with the help of microcontroller and binary logic is proposed, simulated, and implemented. The method presented is of iterative nature ...

Our experiments consistently demonstrated that 1) the use of a pre-trained CNN with adequate fine-tuning outperformed or, in the worst case, performed as well as a CNN ...

In this paper, we propose an ultra-light electrolytic capacitor appearance defect detector based on YOLOv5, without compromising the detection accuracy. MobileNet, GSconv and GSCSP are used to compress the network model, reducing the network model complexity and model size, while the CBAM attention mechanism is used instead of the SE mechanism ...

A novel method based on Long Short-Term Memory (LSTM) network for the compensation capacitor disconnection fault detection and diagnosis in the ZPW-2000 Joint-less Track Circuit is presented. The fault detection and diagnosis of compensation capacitors in the ZPW-2000 Joint-less Track Circuit (JTC) are quite crucial and challenging for Chinese railway ...

Découvrez l'importance cruciale du Fine Tuning en Machine Learning et son impact sur la cybersécurité. Cet article vous guide à travers les techniques essentielles comme le Transfer Learning, l'Hyperparameter Tuning et la Data Augmentation, illustrées par des cas pratiques captivants. Apprenez comment ajuster finement vos modèles pour accroître la précision, ...

In this study, a real-time object detection algorithm based on an improved single shot multibox detector (SSD) is proposed to achieve omnidirectional surface defect detection of electrolytic capacitors. First, an electrolytic capacitor surface image acquisition device was established to capture omnidirectional surface images of the capacitors ...

Abstract--The purpose of this work is to improve the detection and characterization of capacitor based failures due to dielectric defects. Capacitor defects significantly contribute to infant and ...

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Our experiments consistently demonstrated that 1) the use of a pre-trained CNN with adequate fine-tuning outperformed or, in the worst case, performed as well as a CNN trained from scratch; 2 ...

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