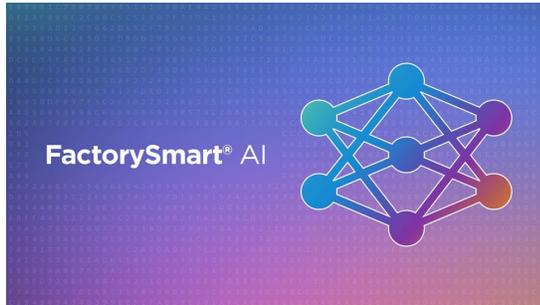


DETERMINING IF AI IS RIGHT FOR YOUR INSPECTION APPLICATION

by LMI Staff on 2021-10-21



We know AI is suitable for industrial inspection. But is AI right for YOUR specific application? This can be a very difficult question to answer.

To help you get the answers you need, LMI's dedicated experts can conduct a thorough evaluation of AI for your production line(s). If together we discover AI is not a good fit, you can

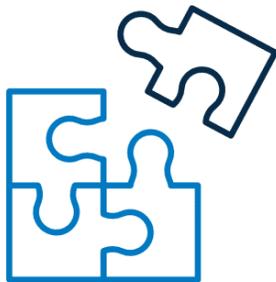
walk away with a deeper understanding of your manufacturing needs.

If on the other hand, we find AI would prove to be a valuable asset to your business and you choose to proceed, LMI can then embark on the process of designing, deploying, and supporting a full AI inspection system for your factory.

Here's how it works.

PHASE 1. CONSULTATION AND EVALUATION

We start with an initial consultation to assess the scope of your inspection problem. This includes data collection, labeling, initial model training, and a feasibility study to analyze whether or not AI-based inspection will in fact provide maximum benefit for your production line.

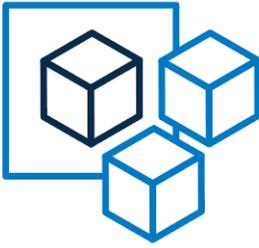


Collecting Raw Data

To create our AI-based detection classification or anomaly model, we need a dataset of inspection images or height maps. These are used to train a model specific to your application.

To do this we can use data from your existing vision system when one is present. Or, if this is a new application, our AI specialists will visit a facility of your designation to collect sample image data. Data collection time will vary based on the application. Ideally, we will be able to gather data across all the inspection edge cases so that we can build the most robust inspection models possible.

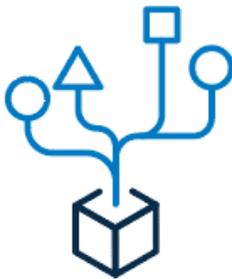
NOTE: All data collected is guaranteed 100% confidential and secure. LMI is licensed to use the data solely for the purpose of creating a trained AI model for your inspection application.



Labeling Data and Preprocessing

Labeling relates to creating an association between each image or heightmap in the dataset with a particular classification. For instance, this may involve segmenting the scene if the system is required to identify the defect coordinates. In other scenarios, such as when the product under inspection is singulated, the label can be embedded in the image or heightmap filename.

LMI's AI specialists will address all of these scenarios, comb through the raw images taken either from a pre-existing database or collected at your facility in order to assign classifications, mark defects/objects of interest, as well as identify elements required for background removal and other essential image operations.



Developing an AI Model Pipeline (Design, Training, Validation)

Now that we have a labeled dataset, we can start training different models to help determine the best one(s) for your application. In some cases, pre-processing may need to be used to reduce image size, bit depth, or any number of operations that help us improve training results. More demanding applications will require a combination of deep learning models that connect to a traditional algorithm to perform gauging or some other measurement.

LMI will design and configure the most appropriate AI model pipeline for your application. The AI model pipeline performance will then be validated and measured to create a baseline for future improvement.



Generating Your Feasibility Report

Now that we have built our AI pipeline and tested its performance, we are ready to provide a data-driven answer to the question: "Is AI appropriate for my application?"

LMI will conduct a short test on sample production data and provide a report that summarizes FactorySmart AI performance and suitability for your application. We will also deliver a live demonstration of the solution and propose the next steps towards transitioning the project into a production, in-line deployment. You will be armed with the knowledge and experience necessary to decide whether to move forward with deploying FactorySmart AI in your factory.

If you're interested in how AI can work for your inspection application you can contact us by sending an email to marketing@htetech.com with your name, company name, company address, company email, company phone number, and one of our experts will get in touch!