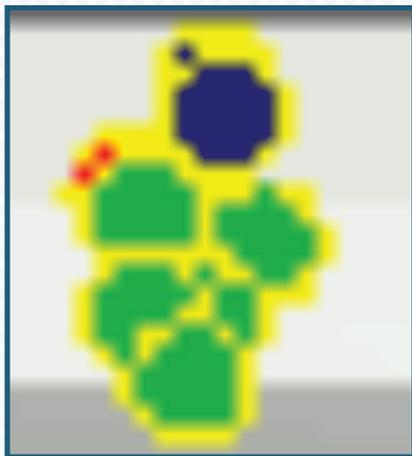


### PROBLEM:

Finding the root cause of composite machining problems—such as features machined in improper locations or delamination caused by tool wear—can be a difficult challenge.

### WHAT NLIGN PROVIDES:

While NLign alone won't solve these problems, it is proving to be a valuable aid in identifying the adverse manufacturing trends that cause them.



This illustration is a close-up of an actual user's study of drilled hole locations. (NLign exaggerates the dimensional information for ease of interpretation.)

In this case, the NLign user imported Coordinate Measuring Machine (CMM) data from a commercial metrology software solution and automatically aligned the hole location data to a geometric model of the component.

The red location (obscured by a green hole) is the intended location of the hole. This overlaid view allows the comparison of the relative locations of the same drilled hole from seven different production parts.

By creating this view, NLign enables the user to visualize both the scatter and bias of the drilling tool location quickly and easily. This information alone has greatly aided the user's efforts to meet the required drilled hole location specifications.

### THE RESULT:

- NLign integrates multiple sets of CMM data with geometric models of the component involved. This provides a powerful tool for identifying the as-built accuracy of features such as holes compared to the design intent.
- NLign can also fuse this measurement data with additional inspection data to identify both location trends and adverse changes in machining quality.
- Areas of missed inspection were quickly identified.

### SOLUTION:

NLign improves the user's machining accuracy by providing early identification of adverse quality trends. This data is visualized quickly and easily by aggregating component machining location and inspection data, interactively filtering the results, and overlaying multiple instances of the same operation.