GM | GageMap

Apply strain gages and accelerometers to your finite element model independent of the mesh anywhere you want, or let Gagemap do it for you.

STRAIN GUAGE

APEX Sensor Placement & FEA Analysis

- Compute optimum sensor placement based on a variety of user-selectable criteria using an advanced genetic algorithm. Criteria include maximizing measurable strain/displacement, maximizing strain vector orthogonality between modes for mode identification, minimizing error due to sensor misplacement and more.

- Create/edit virtual strain gages, displacement sensors, and tip timing sensors. Edit sensors locations and orientations using drag and drop technology.

- View a variety of structural information such as displacement, stress, and strain and animate normal modes analysis results.
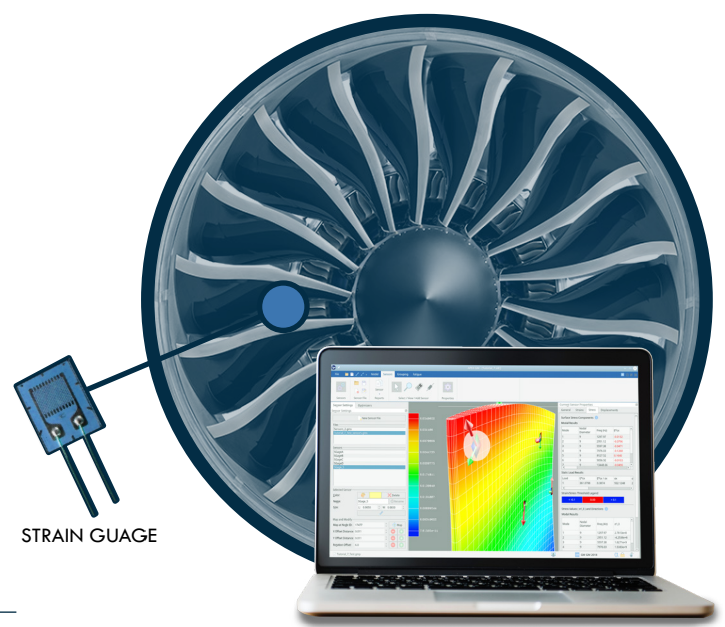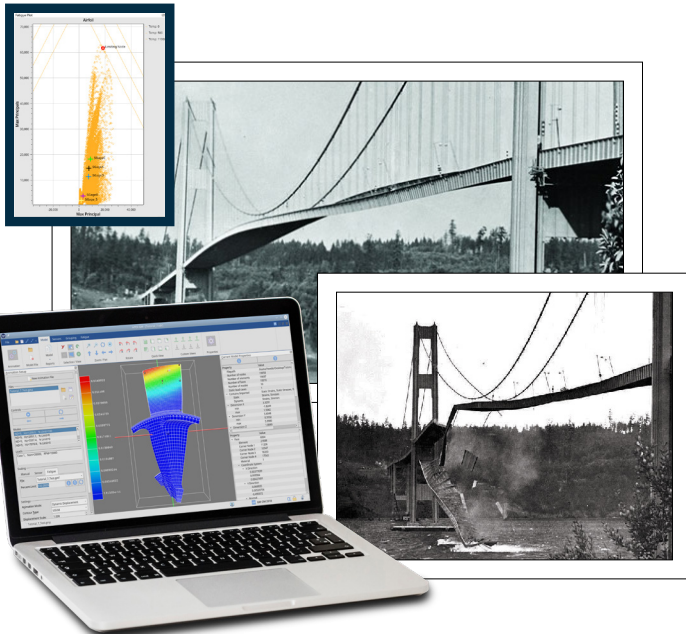
Interface directly with:

N | MSC Nastran
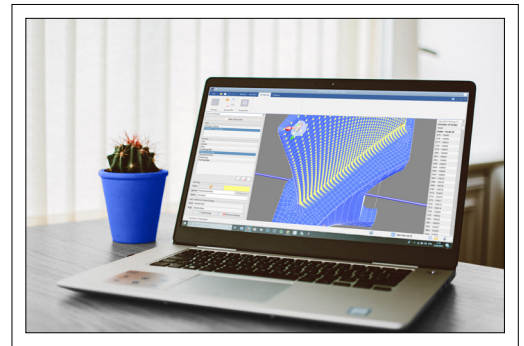
SIMULIA ABAQUS | ANSYS

Sensor Grouping
Focus the analysis based on geometry grouping. Groups can be created interactively, or by import from the finite element model data. Combine groups based on Boolean operators.
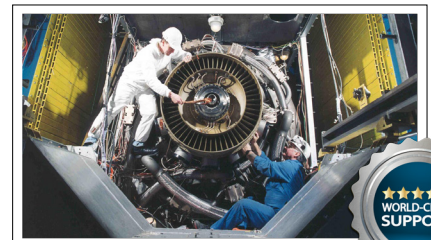
Fatigue Analysis
Perform High Cycle Fatigue (HCF) assessments based on test data. Fatigue model supports location dependent material properties and temperature dependent material properties.

Onsite Training
We've moved much of our know-how to the real time environment where we help guide critical test decisions and get a head-start on the final analysis.

WORLD-CLASS SUPPORT

GM | GageMap

The link between your finite element analysis and test preparation and data analysis

- Validate finite element models based on strain gage data or scanning laser vibrometry data. Analytical and experimental data are compared directly in the sensor coordinate system.

- Perform many of these features and more using the GageMap scripting module which allows finite element analysis results and GageMap specific results to be wrapped into advanced analysis scripts such as dealing with "hot/cold" geometry correction, determination of limits based on modal superposition, or application of advanced success criteria.

### How do YOU create safety limits for testing?

Getting data from your finite element model that you can compare to your test data is challenging. Complex geometry, cyclic symmetry, complex strain fields, location dependent material properties, and anisotropy all make figuring out the strain at a particular point in a particular direction very difficult. Not to mention it can be difficult to even mount the strain gage. And, how about resolving the measurement in the direction of the sensor? Is the sensor large compared to the finite element mesh? What about averaging?

GageMap was designed to handle all these problems so that you can spend time working on the test.
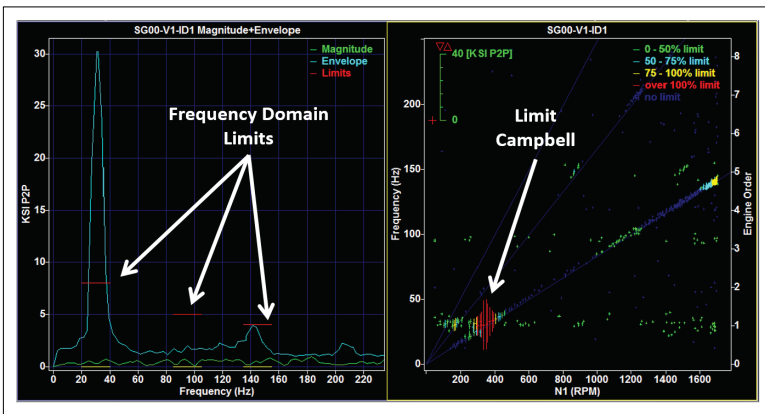
Sensor Limits

Prepare mode-based and parameter based (centrifugal stiffening, for example) sensor limits, using the fatigue module. Export sensor limits for use in other APEX products. Minimize measurement error by remappng sensor locations within application tolerances based on validation data.
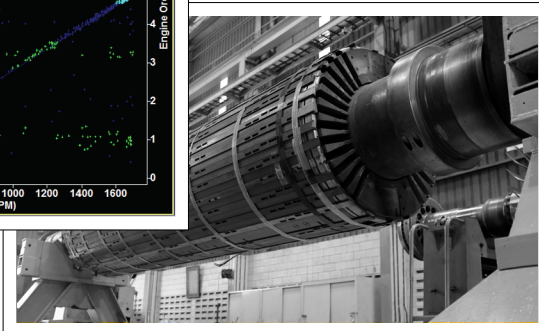
SENSOR PLACEMENT

FATIGUE ANALYSIS

MODEL VALIDATION

SENSOR LIMITS

MODEL ANIMATION

SENSOR GROUPING

TASK AUTOMATION

Apex Turbine®
Testing Technologies