



CUSTOMER:
Huntington Ingalls Industries (HII)

INDUSTRY:
Shipbuilding

PROJECT NAME:
Customization of Femap FEA Preprocessor for Shipbuilder Needs

CUSTOMER LOCATION:
Pascagoula, Mississippi

OVERVIEW

ATA Engineering, Inc., (ATA) participated on a team led by Huntington Ingalls Industries (HII) that secured a panel project from the National Shipbuilding Research Program. Based on requirements defined by HII, ATA created a Femap toolbox to reduce the amount of time necessary to create an analysis model from CAD geometry. The tools aimed to automate manual tasks within Femap and provide shortcuts for tedious procedures. As the most time-consuming part of creating an analysis model is often the creation of meshable geometry, a process that can include simplification of geometry and creation of mid-surfaces, the toolbox contained several programs for creating or editing mid-surface models—allowing up to a 60% decrease in model creation time—as well as new methods for checking model quality and tools to aid with mesh grouping.

ATA SUPPORT INCLUDED:

- ▷ Worked with HII to understand current analysis workflows and areas of frustration.
- ▷ Developed a list of possible tools based on HII's needs and the capabilities of the Femap Application Program Interface (API), and wrote Visual Basic programs to perform the functions HII selected as most valuable.
- ▷ Passed the programs to HII for several rounds of beta testing; ATA then updated the code to address bugs found in the testing and made additional requested enhancements.
- ▷ Provided the final toolkit to HII, along with a written report describing the functionality of each tool in detail.

▼ The final toolbox contained the sixteen tools listed in the menu; one of the tools cuts a snipe into a geometry surface

