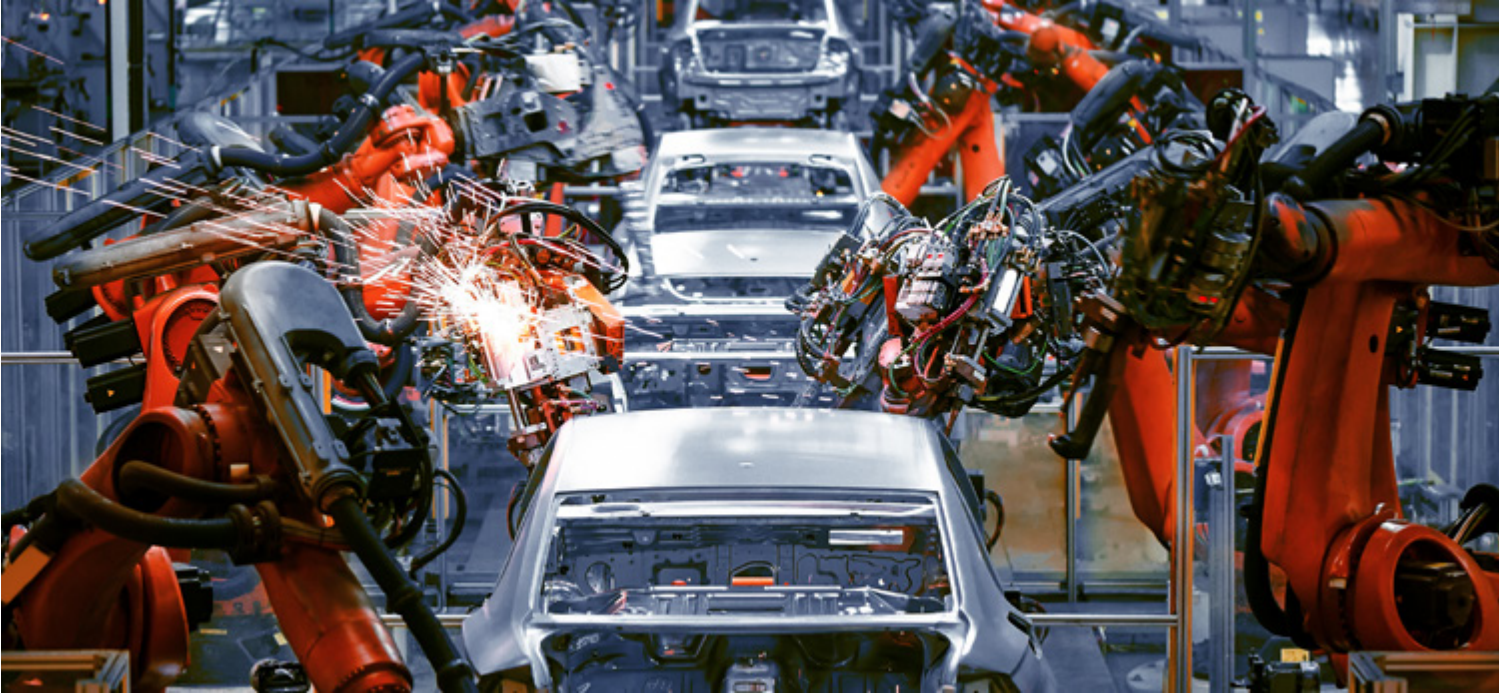


Standardization of the Model Building Process with Meshing and Weld Creation Automation



Headquartered in Japan with international locations, F.tech is a Tier-1 automotive systems supplier. The company provides a variety of automotive components such as subframes, suspension control arms, and pedals to Original Equipment Manufacturers (OEM). F.tech R&D North America based in Troy, OH, has full in-house research and development capabilities for Design, Computer Aided Engineering (CAE), prototyping and testing. This team embraces virtual design validation, making extensive use of simulation tools, including Altair's HyperWorks™ software suite.

F.tech-PAS – Pre-processing Automation Solution

Complexities in vehicle design and development including the cost of prototypes, compliance with safety standards, and emissions etc. pose many challenges for the engineers who develop them. CAE can play a significant role in ensuring feasibility of design, accuracy of models and testing and analysis, thus providing valuable efficiency in the process and saving time while maintaining program deadlines.

To help the CAE team at F.tech R&D North America overcome tedious challenges related to model build and geometry preparation for weld creation, Altair developed a customized solution. Developed using Altair's Model Mesher Director (MMD) PSO (Packaged Solution Offering), the F.tech -Pre-processing Automation Solution (F.tech-PAS) is a streamlined toolset which aids F.tech engineers in CAE meshing and assembly from CAD to solver deck. As a fully-integrated, user-friendly solution, some of the key features of this tool include launching the tool from Altair HyperMesh™, capturing best model building practices and automating the different steps in the meshing and welding processes.

Once the model file is imported, it is simplified by geometry clean-up and meshing, creating welds and washers.



Industry

Automotive

Challenge

To standardize model building process with meshing and different types of weld creation automation

Altair Solution

F.tech-PAS (F.tech -Pre-processing Automation Solution) a customized solution for F.tech developed using the Model Mesher Director (MMD)

Benefits

Reduction by 20-25% in pre-processing time in the model-build process

As a result, their engineers are now able to efficiently simplify and de-feature the geometry, accelerate the meshing and weld creation process, and automatically assign materials & properties. After the model is complete it is ready for analysis with Altair OptiStruct™ or an alternate solver.

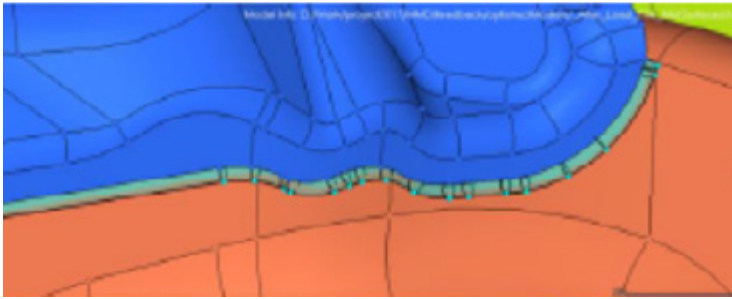
A Streamlined Process

Using the F.tech-PAS solution has greatly assisted F.tech engineers in streamlining the model-build process, saving them up to 20-25% in pre-processing time. Auto-splitting the surfaces, as a part of the geometry cleanup task, is very important for automatic weld creation and a significant contributor to the overall efficiency improvement.

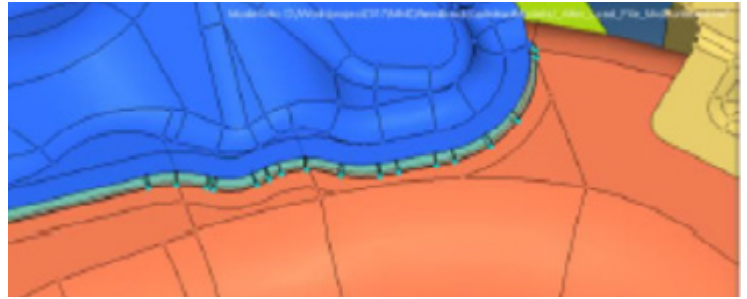
The F.tech-PAS tool has allowed automation and standardization of model pre-processing at F.tech, which eliminates likelihood of human errors, increases the accuracy of analysis data, while saving valuable development time. The flexibility afforded by the customized solution allows application to all vehicle components engineered by F.tech R&D North America.

“The tailored software solution F.tech-PAS - The **P**re-processing **A**utomation **S**olution designed by Altair has dramatically improved standardization and efficiency of our model-building process, saving us extremely valuable time. The entire setup can now be automated with a high degree of confidence in the accuracy of the results.”

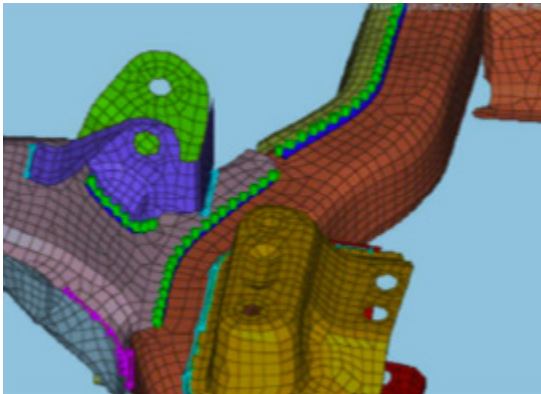
Kyle Marcum, F.tech R&D North America



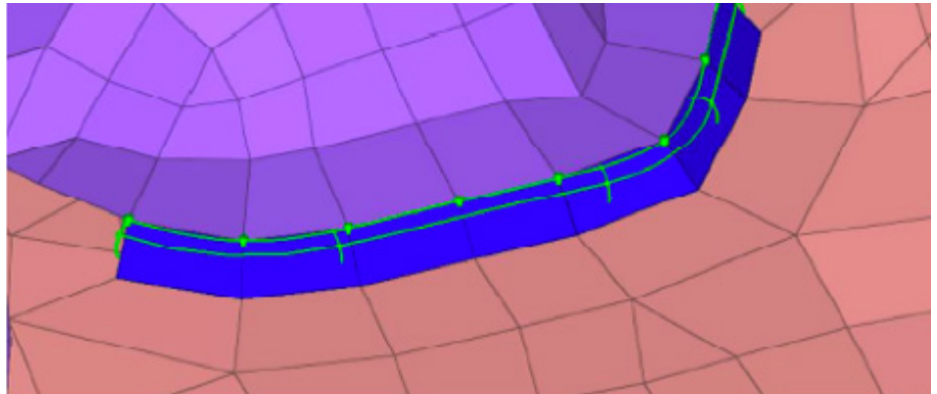
Geometry preparation for weld creation by auto-splitting the surfaces at weld location



Automatically split and cleaned the geometry for weld creation using F.tech-PAS



Meshed Model



Automatic weld creation using F.tech-PAS

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