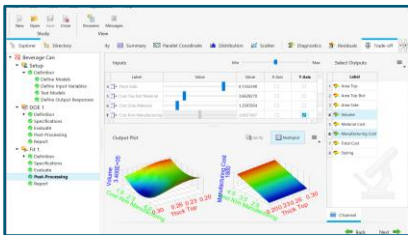


ACCELERATING ENGINEERING WITH AI FROM ALTAIR

Altair for Engineering AI

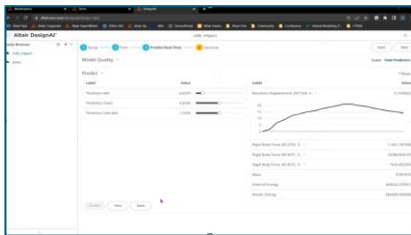
HyperStudy

Multi-Disciplinary Design Exploration



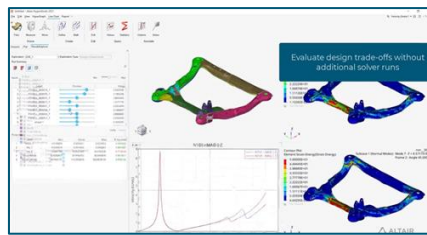
physicsAI Studio

Design Exploration in AltairOne



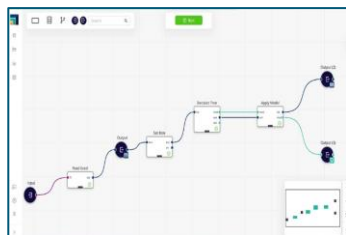
Design Explorer

Design Exploration in HW & Inspire



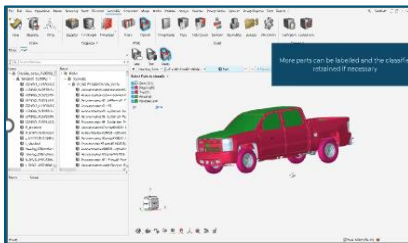
AI Studio

Low/No Code Data Science



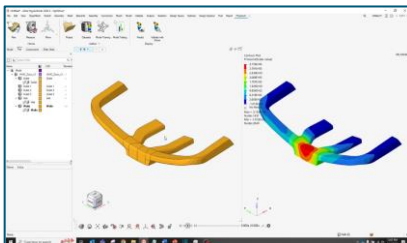
shapeAI

Geometry/results Recognition, clustering



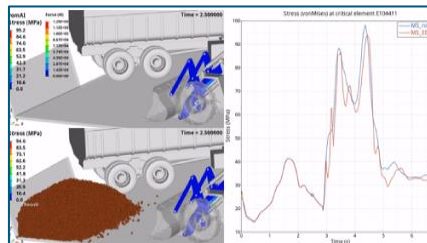
physicsAI

Fast Physics Predictions



romAI

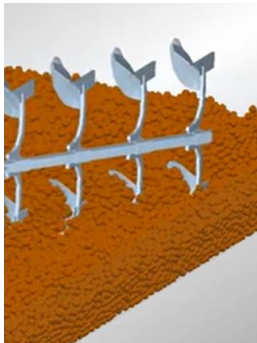
ROM, System Identification



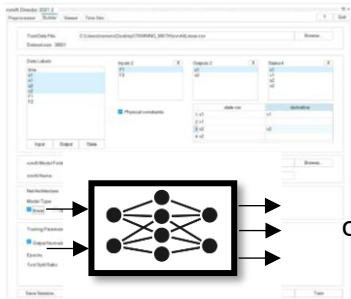
Altair romAI to improve the performance and the accuracy of a Real-Time simulator



EDEM



romAI/Activate



Real-Time Hardware



deployment on RT hardware

Value

- More realistic feeling during plowing phase
- Better estimation of consumptions

Giuseppe Gullo
CNH Industrial

Deep Learning for a Real-Time Hardware Application

This study explains how romAI was used to turn high-fidelity 3D simulations into an efficient and accurate deep learning model deployed for a real-time hardware application.

“romAI merges a user-friendly interface with an explicit definition of the training parameters. This combination enables users to produce accurate models that are easily deployable.”

— Giuseppe Gullo, senior FEA analyst, CNH Industrial

[Learn More](#)



<https://altair.com/romai-applications>

Crash box design optimization with Altair physicsAI



Challenges:

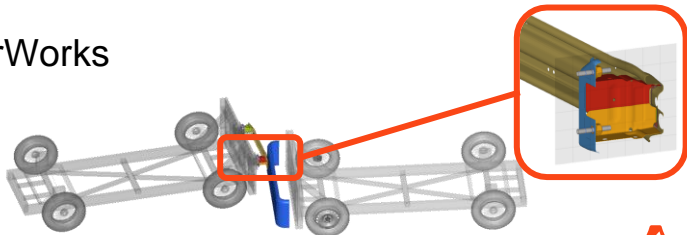
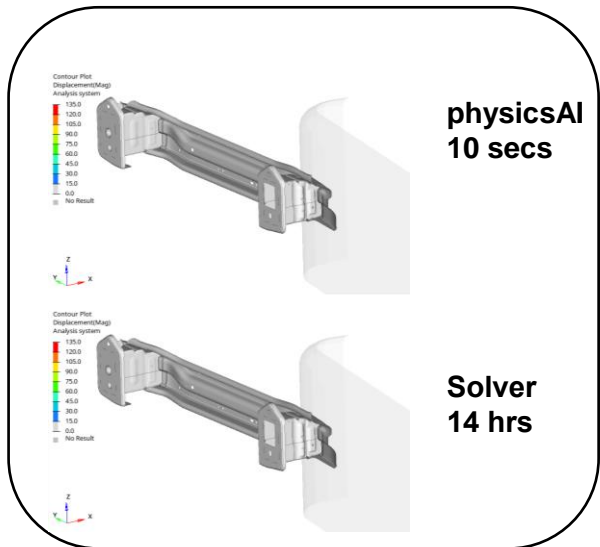
- Crash box simulation requires 14 hours
- This long simulation time does not allow for design exploration

Solution:

- Altair HyperStudy for synthetic data generation
- Altair physicsAI for fast physics predictions using simulation data

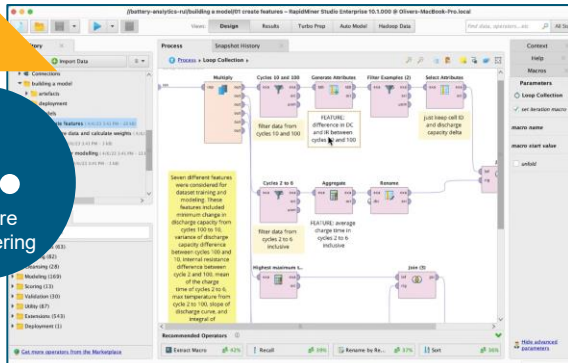
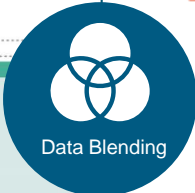
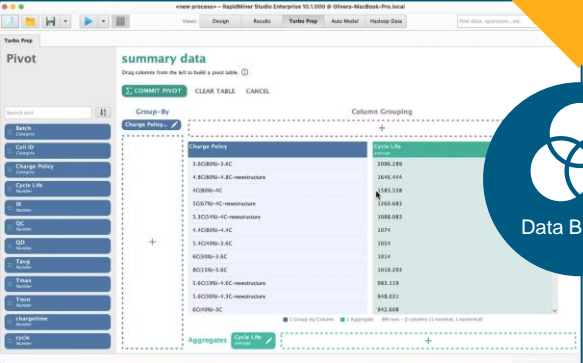
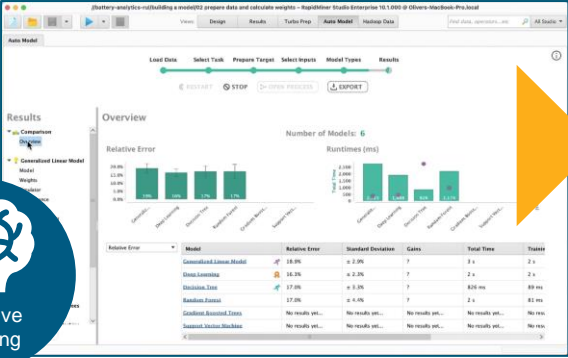
Benefits:

- Prediction of highly nonlinear transient behavior in 10 seconds instead of 14 hours of solver time
- Ease of access, use and post-processing in HyperWorks



Holistic Battery Development with Altair AI studio

Predicting Remaining Useful Life for Batteries



<https://altair.com/altair-ai-studio>