DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

MASTER'S THESIS DEFENSE

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AUTOMATION OF A MULTI-STAGE T-JOINT ASSEMBLY OF STAMPED COMPONENTS AND PREDICTION OF PERFORMANCE PARAMETERS USING MACHINE LEARNING

In this research project, a multi-stage simulation workflow was developed for a T-Joint assembly of stamped components using explicit FEA. Through the integration and automation of the simulation workflow a large dataset of varying parameters for the components and assemblies was generated. The generated dataset was analyzed for variety and balance. Subsequently, machine learning models were trained on the generated dataset to predict component-level stresses and 2D shapes after springback, and assembly-level geometric parameters. The effectiveness and accuracy of the ML models were evaluated, providing valuable insights into the potential of combining FEA simulation and ML techniques in manufacturing problems.

Friday, July 7th, 2023 / 9:00 AM
Scott Lab E525
Meeting ID: 97220194664 | Password: 528102

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