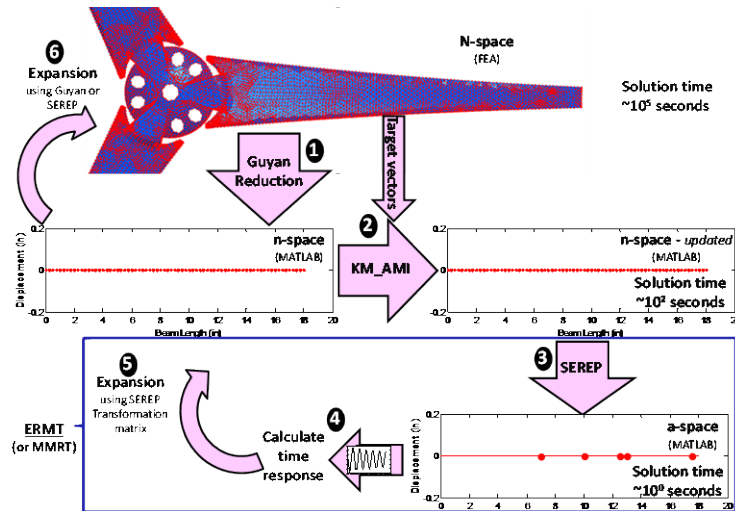




MASTER'S RESEARCH – JULIE HARVIE

Computationally Efficient Reduced Order Models for Full Field Non-Linear Dynamic Strain Predictions



Alternative methods are available to compute the dynamic response of both linear and nonlinear systems. The proposed approach utilizes highly reduced order models to determine the response of a system with local nonlinear connection elements at a limited set of nodes; the approach involves approximating the system as piecewise linear rather than employing a nonlinear solution scheme. Once the time response is calculated at the reduced set of nodes, a single transformation matrix is used to expand the results to full space regardless of the configurations encountered.