

Intelligent Multi-Tasking Computer Aided Engineering Systems

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The Design and Analysis of current structures requires the interplay of multi-Physics regimes in Continuum Mechanics. This interaction extends to lifetime monitoring and studies in lifetime extension where experimental results are included in the process. This has made the Adaptive pre- and post-processors (CAE Systems) the focus of developments where Artificial Intelligence (AI) can be brought to bear in implementing and simplifying the computing tasks. The implementation of the computing tasks is necessarily a multi-tasking and sequentially dependent process, which is best, achieved by the use of a computer grid. This implementation with a computer grid can also be used to solve problems that are larger by an order of magnitude. Whereas, the simplification of the computing tasks is achieved by AI in one of its many forms, such as expert systems, intelligent agents, navigation systems, optimizers and Design of Experiments. The development and deployment of CAE Systems require extensive Verification and Validation, which by its statistical nature is again aided by the tools implemented in the system.

This symposium invites contributions which describes examples of the above in the development of the whole or parts of complex structures such as cars and/or planes. It also asks for contributions where progress is described in the development and integration of the tools in CAE Systems viz. computer grids and the AI algorithms listed above.