System Simulation by Recursive Feedback: Coupling a Set of Stand-Alone Subsystem Simulations

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BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 202 pages. Dimensions: 9.7in. x 7.4in. x 0.4in.Conventional construction of digital dynamic system simulations often involves collecting differential equations that model each subsystem, arran g them to a standard form, and obtaining their numerical gin solution as a single coupled, total-system simultaneous set. Simulation by numerical coupling of independent stand-alone subsimulations is a fundamentally different approach that is attractive because, among other things, the architecture naturally facilitates high fidelity, broad scope, and discipline independence. Recursive feedback is defined and discussed as a candidate approach to multidiscipline dynamic system simulation by numerical coupling of self-contained, single-discipline subsystem simulations. A satellite motion example containing three subsystems (orbit dynamics, attitude dynamics, and aerodynamics) has been defined and constructed using this approach. Conventional solution methods are used in the subsystem simulations. Distributed and centralized implementations of coupling have been considered. Numerical results are evaluated by direct comparison with a standard total-system, simultaneous-solution approach. This item ships from La Vergne,TN. Paperback.

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