



## A High-Order, Linear Time-Invariant Model for Application to Higher Harmonic Control and Flight Control System Interaction (Paperback)

By Rendy P Cheng

Bibliogov, United States, 2013. Paperback. Condition: New. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*.This research describes a new methodology for the extraction of a high-order, linear time invariant model, which allows the periodicity of the helicopter response to be accurately captured. This model provides the needed level of dynamic fidelity to permit an analysis and optimization of the AFCS and HHC algorithms. The key results of this study indicate that the closed-loop HHC system has little influence on the AFCS or on the vehicle handling qualities, which indicates that the AFCS does not need modification to work with the HHC system. However, the results show that the vibration response to maneuvers must be considered during the HHC design process, and this leads to much higher required HHC loop crossover frequencies. This research also demonstrates that the transient vibration responses during maneuvers can be reduced by optimizing the closed-loop higher harmonic control algorithm using conventional control system analyses.

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