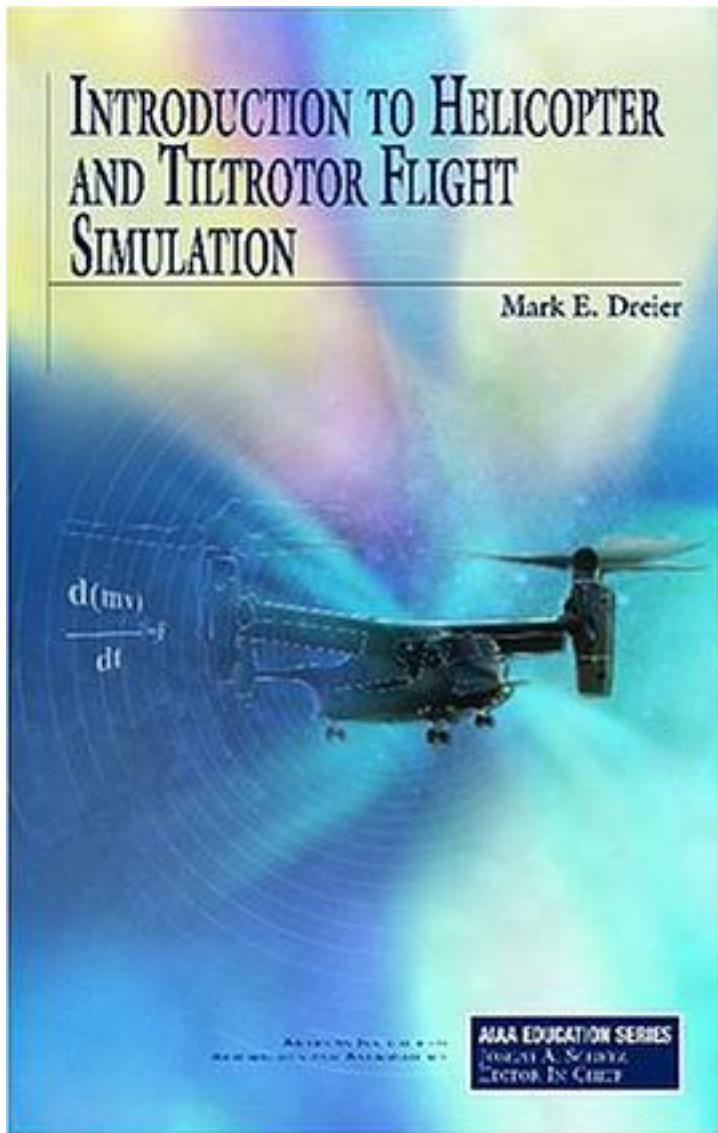


# Introduction to Helicopter and Tiltrotor Flight Simulation



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While many available texts cover some aspect of simulation, this book is unique in that it brings all the tools required to write a flight simulation mathematical model together in one reference. As one reviewer of the text stated, the breadth of material in this book will make it valuable for a wide range of engineering applications, not simply simulation. The organization of the book makes it the perfect reference guide, as chapter after chapter follows a logical build-up to a complete aircraft model. The book begins with a discussion that focuses the reader on the types of flight simulation that are possible. From there, chapters are dedicated to vectors, vector resolution and the many axis systems used in helicopter analysis. A brief chapter on atmospheric modeling precedes a critical section devoted to the importance of establishing the distinction between inertial velocity, wash velocity and aerodynamic velocity. After these chapters have built the foundation for aerodynamics and dynamics, the rotorcraft is modeled from simple components up to more complex systems with chapters dedicated to each of the following: fuselage, wings, propellers, rotors, engines, drive systems, landing gear, controls and aerodynamic coupling. The final chapters describe overall organization and informational flow, and methods to trim the aircraft to initial states. In all, the book holds 18 chapters and 12 appendices along with accompanying problem sets, a solutions manual, and demonstration programs on a CD-ROM. The demonstration programs, written in Visual Basic, serve as a tie-in between chapters and offer a real asset to the reader. One reviewer of the text put it this way, they bring the equations to life. Finally, the text offers an appendix of humorous axioms and observations about flight. As the author explains, Some of the wisdom of the flying ages is presented here, partly for amusement, partly because pilots that will fly your simulators all know the pearls, and partly because you'll need to learn them the easy way if you intend to learn to fly. Dreier goes on to explain the inclusion of these fun notes by saying...It is my belief that one will get more from one's job if the job is enjoyable. If you are a student or currently working in the field or rotorcraft analysis, this is an essential addition to your reference library.

作者介绍:

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