

Preface

Aircraft accident investigation is essential for improving aviation safety by identifying the causes of failures and preventing future incidents. The rapid advancement of digital flight recorders, cockpit voice recorders, artificial intelligence, and predictive analytics has transformed traditional forensic investigation into a data-driven discipline. This book explores modern approaches to black box signal decoding, forensic data interpretation, machine learning, and predictive modeling for aircraft accident analysis. It highlights techniques for extracting meaningful insights from flight data, reconstructing accident events, and supporting evidence-based decision-making. By integrating aviation forensics with intelligent analytics, this work provides researchers, engineers, investigators, and students with valuable knowledge to enhance accident prevention and strengthen global aviation safety standards.