

Smart Autonomous Aircraft: Flight Control and Planning for UAV

By Yasmina Bestaoui Sebbane

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With the extraordinary growth of Unmanned Aerial Vehicles (UAV) in research, military, and commercial contexts, there has been a need for a reference that provides a comprehensive look at the latest research in the area. Filling this void, **Smart Autonomous Aircraft: Flight Control and Planning for UAV** introduces the advanced methods of flight control, planning, situation awareness, and decision making.

This book is among the first to emphasize the theoretic and algorithmic side of control and planning in dynamic and uncertain environments. Focused on the latest theory that informs flight planning and control, it describes the use of computational intelligence modeling, control, and planning.

Providing background information on fixed-wing unmanned aerial vehicles, the book proceeds from the basics to advanced methods, from classical to the most innovative. It examines the current state of the art and covers the topics required to assess the autonomy of UAVs.

An ideal resource for researchers and practitioners working on solutions for implementing advanced capabilities in UAVs, the book details the mathematical underpinnings of each concept and includes illustrative case studies to reinforce understanding.

Providing an interdisciplinary point of view on autonomous aircraft, the book reviews the different methodologies of control and planning used to create smart autonomous aircraft. The topics covered in this book have been derived from the author's research and teaching duties in smart aerospace and autonomous systems and from literature survey.

Assuming an understanding of engineering at the undergraduate level, this book is suitable for advanced-level graduate students and PhD students enrolled in UAV or aerial robotics courses.

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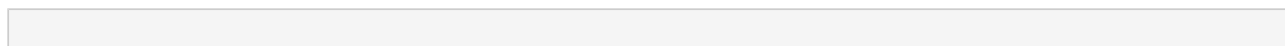
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Editorial Review

Review

"**Smart Autonomous Aircraft** gives an interdisciplinary point of view on autonomous aircraft. It develops models and reviews different methodologies of control and planning used to create smart autonomous aircraft. Some case studies are examined as well. An ideal resource for researchers and practitioners working on solutions for implementing advanced capabilities in UAVs, **Smart Autonomous Aircraft** details the mathematical underpinnings of each concept and includes illustrative case studies to reinforce understanding. The topics considered in the book are derived from Sebbane's research and teaching duties in smart aerospace and autonomous systems over several years. Some parts are based on the top literature in the field. Assuming an understanding of engineering at the undergraduate level, **Smart Autonomous Aircraft** is suitable for advanced-level graduate students and PhD students enrolled in UAV or aerial robotics courses, as well as researchers.

?SirReadaLot.org, February 2, 2016

About the Author

Yasmina Bestaoui Sebbane earned her PhD in Control and Computer engineering from Ecole Nationale Supérieure de Mécanique, Nantes, France, in 1989 (Currently Ecole Centrale de Nantes) and the Habilitation to Direct Research in Robotics, from the University of Evry, France, in 2000.

She is with the Electrical Engineering Department of the University of EVRY since 1999. From 1989 to 1998, she was with the Mechanical Engineering Department of the University of NANTES. From September 1997 till July 1998, she was a Visiting Associate Professor in the Computer Science department at the Naval Post Graduate School, Monterey, California, USA.

Her research interests include control, planning, and decision making of unmanned systems, particularly unmanned aerial vehicles and robots. She is the author of two other books: *Lighter than Air Robots* (Springer) and *Planning and Decision Making for Aerial Robots* (Springer).

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