

Fabrizio Giuliotti

Associate Professor

Department of Industrial Engineering

Academic discipline: ING-IND/03 Flight Mechanics

Director of Second Cycle Degree of Aerospace Engineering

Curriculum vitae

CURRENT POSITION AND EDUCATION

From September 2014: Associate Professor of Flight Mechanics, Department of Industrial Engineering (DIN), University of Bologna.

January 2005 to September 2015: Assistant Professor of Flight Mechanics, Department of Industrial Engineering (DIN), University of Bologna.

July 2002 to January 2005: post doctoral fellow, University of Bologna.

From 1999 to 2002: Ph.D. student in Automatic Control at the Department of Electrical Systems and Automation of the University of Pisa. Ph.D. thesis on "Dynamic, Control, and Management Issues of Formation Flight of UAVs".

July 1998: Laurea degree in Aerospace Engineering from University of Pisa with a thesis on 'Identification issues for conventional aircraft'.

RESEARCH ACTIVITY

The research activity of Fabrizio Giuliotti involves dynamic and control issues of atmospheric and space flight. Early research activities addressed formation flight control of Unmanned Aerial Vehicles (UAVs) and longitudinal and lateral/directional aircraft dynamics analysis. From 2006 he is the coordinator of the Flight Mechanics Laboratory, and he started a close cooperation with the Italian Institute of Geophysics and Volcanology (INGV) in two projects: 1) Design and prototyping of an unmanned aircraft for volcano monitoring purposes and 2) Design and prototyping of an UAV for Earth Magnetic Field data acquisition in the Antarctica. Within such projects, Fabrizio Giuliotti, was responsible of the development of the guidance, control, and navigation (GNC) system.

Later on Fabrizio Giuliotti started working on spacecraft control systems with a particular attention on satellites for Low Earth Orbit (LEO) missions and in 2007 he collaborated with the Micro-satellites and Space System Lab of the University of Bologna working on the attitude control system of ALMASat-I, a micro-satellite launched in ESA VEGA maiden flight.

More recently Fabrizio Giuliotti focused on multi-rotor aircraft working on the sizing and performance problems and remote sensing applications such as aerial photogrammetry and thermography.

The scientific activity is demonstrated by 60 publications. A total of 20 papers appeared on peer reviewed international journals, mainly (12 papers) on the Journal of Guidance, Control, and Dynamics. The rest of the papers were presented at international and Italian conferences, the last publication is a text book for Flight Mechanics course.

By limiting the description to journal papers:

13 Journal papers address the problem of small satellite attitude control

10 Journal papers deal with UAV control, formation flight control and management;

2 Journal papers propose new approximate solutions for aircraft dynamics;

2 Journal papers address the problem of recursive estimation theory

BIBLIOMETRICS (05/02/2019)

Citations (2000-2019) : 766 (Scopus)

h-index : 14 (Scopus)

RELEVANT NATIONAL AND INTERNATIONAL PROJECTS

Systems

FP7-SEC-2011-1: AEROCEPTOR: UAV Based Innovative Means for Land and Sea Non-Cooperative Vehicles Stop.

ESA-ITT-AO/1-7062/12/NL/EM: ESEO: European Student Earth Orbiter, Educational Microsatellite Project funded by the ESA (European Space Agency) Education Office, under an Open Invitation to Tender

ESA/ESTEC ITT AO/1-5422/07/NL/HE ARMADA: Autorotation in Martian Descent and Landing, under a subcontract from GMV SA, Spain (2007)

UniBO Strategic Projects: STARS: Standalone Three-Axis Orientation Sensor - Responsible for the H/W and S/W design, prototyping and experimental validation of an innovative Earth sensor for autonomous three axis determination of LEO satellites (2006-2009)

TEACHING ACTIVITY

Fabrizio Giulietti has had a continuous teaching activity since 2004, teaching courses in the field of atmospheric flight mechanics and aircraft design.

From 2004 to 2006: course in Aircraft Design

From 2006 to present: course in Flight Mechanics

From 2007 to present: course in Flight Dynamics

From 2013 to present: Visiting Professor (Flight Mechanics and Dynamics) at KU Leuven (Belgium)

REVIEW ACTIVITY

He is a reviewer for the following Journals:

- Journal of Guidance, Control, and Dynamics, AIAA
- Aerospace Science and Technology, Elsevier
- The Aeronautical Journal, Royal Aeronautical Society
- Transactions on Aerospace and Electronic Systems, IEEE