



Anand Sanchez

Professor, Research Center for Advanced Studies (CINVESTAV), Mexico

12 July 2016 – 10:30 a.m

Université de Technologie de Compiègne
GI 042 – Bâtiment Génie Informatique
Avenue de Landshut
60200 Compiègne

Control and navigation of quadrotors performing aggressive maneuvers

Abstract:

Nowadays, quadrotors have a great potential in a wide variety of applications. In recent years, they significantly increased their degree of autonomy and performance, mainly thanks to technological innovations which facilitate their construction and control. However, due to their small size and limited payload, it is necessary to find more efficient solutions for such systems. In this talk I will present the synthesis of robust estimation and control algorithms with respect to endogenous and exogenous disturbances for the autonomous flight of multiple quadrotors. In particular, we consider disturbances that are not necessarily differentiable in the usual sense (integer order). The proposed approach is based on fractional order differintegral operators that provide uniformly continuous control signals in order to exactly compensate these disturbances. In addition, the proposed algorithms allow interactions between quadrotors for tracking aggressive maneuvers. Experimental results will be presented.

Bio:

Anand Sánchez-Orta received his M.Sc. degree in Automatic Control from the Autonomous University of Nuevo León, Mexico and Ph.D. degree in Information and Systems Technologies from the University of Technology of Compiègne (UTC), France in 2001 and 2007, respectively. He joined the Robotics and Advanced Manufacturing Division of the Research Center for Advanced Studies (CINVESTAV) in 2009, where he is currently a Research Professor. His research interests include control theory, estimation and visual servoing with applications to robotics.