International Micro Air Vehicle Conference and Competition

IMAV2013 Program

Tuesday, September 17th

8h30 – 9h : Conference registration

9h – 9h20 : ENAC Welcome

9h20 – 10h35 : Scientific Session 1: Aerodynamics and propulsion performances

• Murat Bronz, Gautier Hattenberger and Jean-Marc Moschetta. Development of a Long Endurance Mini-UAV : ETERNITY
• Klaus-Peter Prof. Dr.-Ing. Neitzke. Rotary Wing Micro Air Vehicle Endurance
• Peng Lv, Sebastien Prothin, Fazila Mohd-Zawawi, Emmanuel Benard, Joseph Morlier and Jean-Marc Moschetta. Adaptive proprotors as applied to convertible MAVs

▶ for all visitors/competitors: presentation of the Outdoor competition place and security rules

10h35 – 10h55 : Coffee break

10h55 – 12h10 : Scientific Session 2: Vision and image processing

• Johannes Schellen, Christian Dernehl and Stefan Kowalewski. Optimizing Image Processing on OMAP3 with driver-level frame buffering and color space conversion
• Guido De Croon, Hann Woei Ho, Christophe De Wagter, Erik-Jan van Kampen, Bart Remes and Qiping Chu. Optic-flow based slope estimation for autonomous landing
• Laurie Bose and Arthur Richards. MAV Belief Space Planning In 3D Environments With Visual Bearing Observations

12h10 – 13h50 : Lunch / Poster session

13h50 – 15h20 : Keynotes lecture and Round table about RPAS Integration in the Airspace

15h20 – 16h20 : Technical Sessions 1 and 2

Technical 1: Rotors and propellers

• Sergey Serokhvostov. One idea of propeller for low Reynolds numbers
• Zhen Liu, Longlei Dong, Jean-Marc Moschetta and Jianping Zhao. Nano Rotor Blade Airfoil Optimization
• Matthew Anderson, Kc Wong and Patrick Hendrick. Propeller Location Optimisation for Annular Wing Design

Technical 2: Mission for MAVs

• Vincent Van Geirt and Renaud Kiefer. Endurance UAV glider for topography application
• Christian Eschmann, Jochen Kurz and Christian Boller. CURE MODERN – Franco-German Infrastructure Inspection with Unmanned Air Systems
• Gautier Hattenberger, Grégoire Cayez and Greg Roberts. Flight tests for meteorological studies with MAV
16h20 – 16h40: Coffee break

16h40 – 18h: Technical Sessions 3 and 4

Technical 3: Aerodynamics
- Sergey Serokhvostov, Kirill Shilov and Nikita Pushchin. *MAV unsteady characteristics in-flight measurement with the help of SmartAP autopilot*
- Warakorn Hlusriyakul, Chanchai Pattanathommasid, Chinnapat Thipyopas and Chanin Tongchitpakdee. *Aerodynamic Investigation and Analysis of Wingtip Thickness’s Effect on Low Aspect Ratio Wing*

Technical 4: Vision
- Andrew Nolan, Daniel Serrano, Aura Hernandez, Daniel Ponsa and Antonio Lopez. *Obstacle mapping module for quadrotors on outdoor Search and Rescue operations*
- Jose Luis Sanchez-Lopez, Alberto Moreno, Jesus Pestana and Pascual Campoy. *Visual Quadrotor Swarm for IMAV 2013 Indoor Competition*
- Johanna Matthaei, Thomas Krüger, Stefan Nowak and Ulf Bestmann. *Swarm Exploration of Unknown Areas on Mars Using SLAM*

► for all competitors: presentation of the Indoor and Outdoor competition rules

**Wednesday, September 18th**

9h30 – 12h30: Outdoor competition (Buses from ENAC at 8h45)

12h30 – 13h30: Lunch

13h30 – 19h: Outdoor competition

**Thursday, September 19th**

9h – 13h: Indoor competition

13h – 14h30: Lunch

14h30 – 15h30: Technical Sessions 5 and 6

Technical 5: Structure / Flapping wing
- Guillaume Bavoux, Baptiste Delannoy, Benoit Wach and Renaud Kiefer. *Development of a Quadrotor based on an Innovative Composite Shape with Carbon and Kevlar Structure*
- S Deng, B.W. van Oudheusden, B. Remes, R. Ruijsink and H Bijl. *Experimental Study of “Delfly Micro” in Forward Flight*
- Johannes Goosen, Hugo Peters and Qi Wang. *Resonance Based Flapping Wing Micro Air Vehicle*
Technical 6: System, navigation and control
  • Montserrat Manubens, Didier Devaurs, Lluis Ros and Juan Cortés. A motion planning approach to 6-D manipulation with aerial towed-cable systems
  • Karl Kufieta and Prof. Vörsmann. First flight experiments with a RT-Linux autocode environment including a navigation filter and a spline controller
  • Bart Remes, Dino Hensen, Christophe De Wagter, Erik van der Horst and Guido De Croon. Paparazzi open source autopilot adapted for use with the Parrot AR drone

17h : Social event at Airbus (bus will leave from Enac)

Friday, September 20th

9h – 10h15 : Scientific Session 3: Flapping wing MAVs
  • Matej Karasek, Iulian Romanescu and Andre Preumont. Pitch Moment Generation and Measurement in a Robotic Hummingbird
  • João Caetano, Jochem Verboom, Coen de Visser, Guido de Croon, Bart Remes, Christophe de Wagter and Max Mulder. Near-Hover Flapping Wing MAV Aerodynamic Modelling - a linear model approach
  • Qi Wang, Hans Goosen and Fred Van Keulen. Optimal hovering kinematics with respect to various flapping wing shapes

10h15 – 10h35 : Coffee break

10h35 – 11h15 : Keynote lecture (US Army)

11h15 – 12h30 : Scientific Session 4: MAV systems, navigation and control
  • Jan Bolting, Francois Defay and Jean-Marc Moschetta. Differential GPS for small UAS using consumer-grade single-frequency receivers
  • Murat Bronz, Jean Philippe Condomines and Gautier Hattenberger. Development of an 18cm Micro Air Vehicle : QUARK
  • Guangying Jiang and Richard Voyles. Hexrotor UAV Platform Enabling Dextrous Aerial Mobile Manipulation

12h30 – 13h45 : Lunch

13h45 – 14h30 : Post-flight Session

Competing teams will be allowed to present to the public their flights and what they achieved during the competition

14h30 – 15h : Awards ceremony and final words