



# EMAV 2009

European Micro Air Vehicle Conference and Flight Competition 2009

*September 14-17, 2009*

*Delft, the Netherlands*

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Organisation

EMAV 2009 was organised by the institutes ASTI (of the TU Delft) and D-CIS Lab (of Thales Research).

|                                 |                                                     |
|---------------------------------|-----------------------------------------------------|
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| Program chair .....             | dr. G.C.H.E. de Croon                               |
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| Forum moderator .....           | dr. D. Mobach                                       |
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| [8] Design Overview of a Resonant Wing Actuation Mechanism for Application in Flapping Wing MAVs . . . . .      | p.51  |
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| [16] optiPilot: control of take-off and landing using optic flow . . . . .                                      | p.98  |
| [17] Proposing a Special Strategy for Platform RDTE Design Cycle of MAV and Small UAV Aircrafts . . . . .       | p.106 |
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## Papers without a full paper

These papers are in the list of papers of EMAV 2009, but their full paper is not in the proceedings: they have no number and no pages.

- [21] Patrick Gnemmi, Arnaud Koehl, Bastien Martinez, Sébastien Changey, Spilios Theodoulis, *Modeling and Control of Two GLMAV Hovering-Flight Concepts*
- [22] Renaud Kiefer, Marc Vedrines, Francois Kiefer, *Development of a mini-UAV with elliptical wing "Drone Cigogne"*

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## Conference Programme

The sessions of the preliminary programme on the conference website, with the talk numbers of the programme. Talks P4, P8, P10, P12 and P13 were nominated by the program committee for the best paper award.

### Session 1: MAV design, concepts, and materials

Monday 14 September, morning

P1: Modeling and Control of Two GLMAV Hovering-Flight Concepts (*no full paper*)

P2: Control Surface of Flying Robot using Piezo-Electric Composite Actuator ..... p.29

P3: Proposing a Special Strategy for Platform RDTE Design Cycle of MAV and Small UAV Aircrafts ..... p.106

### Session 2: Flapping wing MAVs

Monday 14 September, afternoon

P4: Aerodynamic experiments on DelFly II: unsteady lift enhancement ..... p.7

P5: Optimal control of flapping wing with taking into account nonsteady effects ..... p.88

P6: Leading-Edge Vortex Structure for Flow over the Gliding Butterfly ..... p.74

P7: Development of the Flight Performance of a 15 cm Flapping-wing Air Vehicle ..... p.58

### Session 3: MAV design, concepts, and materials

Wednesday 16 September, morning

P8: Towards a Long Endurance MAV ..... p.121

P9: Design of Test Benches for the Hovering Performance of Nano-Rotors ..... p.42

### Session 4: Autonomous Flight

Wednesday 16 September, afternoon

P9: optiPilot: control of take-off and landing using optic flow ..... p.98

P10: Autonomous Flight in Unstructured and Unknown Indoor Environments ..... p.21

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P12: Optical Flow for Heading Estimation of a Quadrotor Helicopter ..... p.80

### Session 5: Flapping wing MAVs

Thursday 17 September, morning

P13: Design Overview of a Resonant Wing Actuation Mechanism for Application in Flapping Wing MAVs ..... p.51

P14: Derivation and simulation of the nonlinear dynamics of a flapping wing micro-air vehicle ..... p.33

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### Poster session

Wednesday 16 September, 13:30; the programme gives no titles: these are the papers that are not in the oral programme

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Geometrical modelling of UAV using parametric CAx systems ..... p.63

Guidance and obstacle avoidance of MAV in uncertain urban environment ..... p.68

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Rotary vs. Flapping-Wing Nano Air Vehicles: Comparing Hovering Power ..... p.114

## Release

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V1.0: the separate paper PDFs on [imavs.org](http://imavs.org) (pages 1-136). V2.0: rendered in the 2018-2026 format as one volume, with the same page numbers.