EuroGNC2017

Program at a Glance

Tuesday, 25 of April 2017

8:00-9:00	Registration - CZIiTT Building, Warsaw University of Technology		
9:00-9:15	Opening and Welcome Address		
9:15-10:00	Keynote 1: Leonardo Mazzini GNC Enablers for the New Space Economy		
10:00-10:30	Coffee Break		
10:30-12:30	Session Room A Aircraft Control and Dynamic I	Session Room B Control Theory and Application	Session Room C Navigation and Localization I
12:30-14:00	Lunch		
14:00-16:00	Session Room A Aircraft Control and Dynamic II	Session Room B Missile Control and Dynamic	Session Room C Spacecraft Control and Dynamic I
18:00	Conference Dinner "Cafe Zamek" - Old Town, Pl. Zamkowy 4		

Wednesday, 26 of April 2017

8:30-9:15	Registration - CZIiTT Building, Warsaw University of Technology		
9:15-10:00	Keynote 2: Daniel Alazard Mechanical and Control Codesign Application to Space System Preliminary Design		
10:00-10:30	Coffee Break		
10:30-12:30	Session Room A Aircraft Control and Dynamic III	Session Room B UAV Control and Dynamic I	Session Room C Navigation and Localization II
12:30-14:00	Lunch		
14:00-16:00	Session Room A Aircraft Control and Dynamic IV	Session Room B Sensors and Systems I	Session Room C Spacecraft Control and Dynamic II
18:00	Reception "Mała Aula" - University Main Building, Pl. Politechniki 1		

Thursday, 27 of April 2017

9:00-10:30	Session Room A Aircraft Control and Dynamic V	Session Room B UAV Control and Dynamic II	Session Room C Sensors and Systems II
10:30-11:00	Coffee Break		
11:00-12:00	Session Room A IPC meeting	Session Room B UAV Control and Dynamic III	Session Room C Spacecraft Control and Dynamic III
12:00-13:30	Lunch		

Technical Program

Tuesday, 25 of April 2017

Room A:	Aircraft Control and Dynamic I

Chair: Daniel Alazard

10:030-11:00

Flight Path Control for a Multi-Body HALE Aircraft
Alexander Kothe and Robert Luckner /*Berlin University of Technology, Germany*/

11:00-11:30

Nonlinear Modular 3D Trajectory Control of a General Aviation Aircraft
Simon Schatz and Florian Holzapfel /*Technical University of Munich, Germany*/

11:30-12:00

Modular Trajectory Generation Test Platform for Real Flight Systems
Volker Schneider and Florian Holzapfel /*Technical University of Munich, Germany*/

12:00-12:30

Multiple-Phase Trajectory Optimization for Formation Flight in Civil Aviation
Sander Hartjes, Marco E.G. van Hellenberg Hubar and Hendrikus Visser /*Delft University of Technology, Netherlands*/

Room B:	Control Theory and Application

Chair: Coen de Visser

10:030-11:00

SPARTAN: A Novel Pseudospectral Algorithm for Entry, Descent, and Landing Analysis
Marco Sagliano, Stephan Theil, Vincenzo D'Onofrio and Michiel Bergsma /*German Aerospace Center, Germany*/

11:00-11:30

Flight Control Law Testing using Optimal Control and Postoptimal Sensitivity Analysis
Johannes Diepolder, Saurabh Saboo and Florian Holzapfel /*Technical University of Munich, Germany*/

11:30-12:00

Robust Incremental Nonlinear Dynamic Inversion Controller of Hexapod Flight Simulator Motion System
Yingzhi Huang, D.M. Pool, O. Stroosma and Qiping Chu /*Delft University of Technology, Netherlands*/

Room C:	Navigation and Localization I

Chair: Youdan Kim

10:030-11:00

Multi Sensor Fusion Based on Adaptive Kalman Filtering
Setareh Yazdkhasti and Jurek Sasiadek /*Carleton University, Canada*/

11:00-11:30

Generalized Image Navigation & Registration Method Based on Kalman Filter
Ahmed Kamel /*Kamel Engineering Service, USA*/, Handol Kim and Dochul Yang /Korea Aerospace Research Institute, Korea/ Chulmin Park /*Korea Aerospace Industries, Korea*/, Jin Woo /*Korea Meteorological Admisistration, Korea*/

11:30-12:00

Terrain Relative Navigation for Planetary Landing using Stereo Vision Measurements obtained from Hazard Mapping
Svenja Woicke and Erwin Mooij /*Delft University of Technology, Netherlands*/

12:00-12:30

Improved Hybrid Navigation for Space Transportation
Guilherme F. Trigo and Stephan Theil /*DLR, Germany*/

Room A:	Aircraft Control and Dynamic II

Chair: Alexander Köthe

14:00-14:30

Identification of a Cessna Citation II Model Based on Flight Test Data
M.A. van den Hoek, C.C. de Visser and D.M. Pool /*Delft University of Technology, Netherlands*/

14:30-15:00

Limit Cycle Oscillation Amplitude Tailoring Based on Describing Functions and mi Analysis
Andrea Iannelli, Andres Marcos and Mark Lowenberg /*University of Bristol, UK*/

15:00-15:30

Aspects of a Consistent Modeling Environment for DO-331 Design Model Development of Flight Control Algorithms
Markus Hochstrasser, Simon P. Schatz, Kajetan Nurnberger, Markus Hornauer and Florian Holzapfel /*Technical University of Munich, Germany*/
Stephan Myschik /*Bundeswehr University Munich, Germany*/

15:30-16:00

Nonlinear Model Predictive Flight Path Control for an Unmanned Powered Paraglider
Fabian Binz, Philipp Hartmann and Dieter Moormann /*Aachen University, Germany*/

Room B:	Missile Control and Dynamic

Chair: Stephan Theil

14:00-14:30

MIMO Attitude Control for a Spinning Rocket
W. C. Leite Filho, J. Guimaraes and L. Galembeck /*Instituto Nacionale de Pesquisas Espaciais, Brazil*/

14:30-15:00

Exoatmospheric DACS Type Missile Controller Based on Sliding Mode Control Considering the Seeker's Field-of-View Limit
Jaeho Lee and Youdan Kim /*Seoul National University, Korea*/

15:00-15:30

Trajectory Shaping Guidance Law Based on Downrange-to-Go Polynomial
Namhoon Cho and Youdan Kim /*Seoul National University, Korea*/,
Hyo-Sang Shin and Antonios Tsourdos /*Cranfield University, UK*/

15:30-16:00

Six Degrees of Freedom Rocket Simulation with Soft-Launch System
Mariusz Jacewicz and Robert Głębocki /*Warsaw University of Technology, Poland*/

Room C:	Spacecraft Control and Dynamic I

Chair: Robert Głębocki

14:00-14:30

Mechanical/Control Integrated Design of a Flexible Planar Rotatory Spacecraft
Jose A. Perez and Thomas Loquen /*ONERA, France*/, Daniel Alazard /*ISAE, France*/, Christelle Pittet /*CNES, France*/

14:30-15:00

Analysis of Optimization Strategies for Solving Space Maneuver Vehicle Trajectory Optimization Problem
Runqi Chai, Al Savvaris and Antonios Tsourdos /*Cranfield University, UK*/

15:00-15:30

Safe Mode Attitude Control of EyeSat Mission
Frédérick Viaud /*CNES, France*/, Olivier Lagrange /*Thales Services, France*/

15:30-16:00

Immersion and Invariance Adaptive Backstepping Spacecraft Attitude Control with Modified Rodrigues Parameters
Guilherme F. Trigo /*DLR, Germany*/
Qi-Ping Chu /*Delft University of Technology, Netherlands*/

Wednesday, 26 of April 2017

Room A:	Aircraft Control and Dynamic III
Chair: Bogusław Dołęga	

10:30-11:00

Development of an Automatic Flight Path Controller for a DA42 General Aviation Aircraft
Erik Karlsson, Simon P. Schatz and Florian Holzapfel /*Technical University of Munich, Germany*/

11:00-11:30

Development of an Automatic Landing System for Diamond DA 42 aircraft utilizing a Load Factor Inner Loop Command System
Nils Christian Mumm and Florian Holzapfel /*Technical University of Munich, Germany*/

11:30-12:00

Active Control Objective Prioritization for High-Bandwidth Automatic Flight Path Control
Erik Karlsson and Florian Holzapfel /*Technical University of Munich, Germany*/

12:00-12:30

nxControl: Ground Mode for Manual Flight Control Laws with Longitudinal Load Factor Command
K. Schreiter, S. Muller, R. Luckner and D. Manzey /*Berlin University of Technology, Germany*/

Room B:	UAV Control and Dynamic I
Chair: Marcin Żugaj	

10:30-11:00

Task Allocation of Multiple UAVs for Cooperative Parcel Delivery
Gyeongtaek Oh, Youdan Kim, Seoul National University, Korea, Jaemyung Ahn and Han-Lim Choi /*Korea Advanced Institute of Science and Technology, Korea*/

11:00-11:30

Circumnavigation with Side-Bearing Angle
Sanghyuk Park /*Korea Aerospace University, Korea*/

11:30-12:00

Ground effect analysis for a quadrotor platform
Davide Del Cont Bernard, Mattia Giurato, Fabio Riccardi and Marco Lovera /*Milano University of Technology, Italy*/

12:00-12:30

Closed Loop Reference Model Simple Adaptive Control for Micro Air Vehicle
Shuvrangshu Jana and M.Seetharama Bhat /*Indian Institute of Science, India*/

Room C:	Navigation and Localization II
Chair: Stephan Theil	
10:30-11:00 A Space-Borne GNSS Receiver for Evaluation of the LEO Navigation Based on Real-Time Platform Hung-Yuan Chang, Wen-Lung Chiang and Kuo-Liang Wu /*NSPO, Taiwan*/	
11:00-11:30 Attitude Estimation Using Airborne Cameras I. F. Finazzi, L. Parrilla, U. Amador, V. M. Fico and M. M. Prats /*University of Sevilla, Spain*/	
11:30-12:00 Optimal Scheduling Algorithm for Air Traffic Point Merge System Using MILP Youkyung Hong, Somang Lee and Youdan Kim /*Seoul National University, Korea*/, Keumjin Lee /*Korea Aerospace University, Korea*/	
12:00-12:30 Taxi-Out Time Prediction Model Through Machine Learning Techniques at Charles de Gaulle Airport Floris Herrema, Richard Curran, Hendrikus Visser and Alexei Sharpanskykh /*Delft University of Technology, Netherlands*/ Denis Huet and Bruno Desart /*EUROCONTROL, Belgium*/, Regis Lacote /*Paris-CDG airport, France*/	

Room A:	Aircraft Control and Dynamic IV
Chair: Coen de Visser	
14:00-14:30 Mission Control Concept for Parcel Delivery Operations based on a Tiltwing Aircraft System M. Schutt, P. Hartmann, J. Holsten and D. Moormann /*Aachen University, Germany*/	
14:30-15:00 Optimal Control-Based Altitude Profile Envelope for Emergency Landing Benedikt Gruter, Johannes Diepolder, Matthias Bittner, Matthias Rieck and Florian Holzapfel /*Technical University of Munich, Germany*/	
15:00-15:30 Helicopter Pilot Model for Pitch Attitude Tracking Task Milan Vrdoljak /*University of Zagreb, Croatia*/ Franz Viertler, Manfred Hajek and Matthias Heller /*Technical University of Munich, Germany*/	
15:30-16:00 An Unusual Structure for a Feedforward Gust Load Alleviation Controller Nicolas Fezans /*DLR, Germany*/	

Room B:	Sensors and Systems I
Chair: Youdan Kim	
14:00-14:30 Characterizing Angular Accelerometer Calibration Setup Disturbance using Box-Jenkins Method D. Jatiningrum, M. M. van Paassen, C. C. de Visser, Q. P. Chu and M. Mulder /*Delft University of Technology, Netherlands*/	
14:30-15:00 Multi-Sensor Obstacle Detection and Tracking for RPAS Situation Awareness and Guidance Kevin Theuma, Kenneth Chircop, David Zammit-Mangion and Jason Gauci /*University of Malta, Malta*/ Roger Archer /*6PM, Malta*/	
15:00-15:30 Aircraft Damage Pattern Recoginition Using Aerodynamic Coefficients and Fuzzy Logic Y. Zhang, C.C. de Visser, Q.P. Chu and E.J. van Kampen /*Delft University of Technology, Netherlands*/	

15:30-16:00

Maximum Null Motion Algorithm for Single Gimbal Control Moment Gyroscopes
S.A.V. Schallig, Q.P. Chu and E. van Kampen /*Delft University of Technology, Netherlands*/
S.W. Rhee /*Korea Aerospace Research Institute, Korea*/

Room C:	Spacecraft Control and Dynamic II

Chair: Robert Luckner

14:00-14:30

Parameterised Laws for Robust Guidance and Control of Planetary Landers
P. Simplicio and A. Marcos /*University of Bristol, UK*/
E. Joffre, M. Zamaro and N. Silva /*Airbus Defence and Space Ltd, UK*/

14:30-15:00

Attainable Landing Area Computation of a Lunar Lander with Uncertainty by Reachability Analysis
Yunus Emre Arslantas /*University of Bremen, Germany*/
Stephan Theil /*DLR, Germany*/

15:00-15:30

Simulation of Autonomous Landing near a Plume Source in a Tiger Stripe Canyon on the South Pole of Enceladus
Kostas Konstantinidis, Manuel Thies, Julian Adler, Nico Hochberger, Martin Rudolph, Paul Dykta and Roger Förstner /*Bundeswehr University Munich, Germany*/

15:30-16:00

Comparison of Multiple Spacecraft Configuration Designs for Coordinated Flight Missions
Federico Fumenti and Stephan Theil /*DLR, Germany*/

Thursday, 27 of April 2017

Room A:	Aircraft Control and Dynamic V

Chair: Janusz Narkiewicz

9:00-9:30

Pseudo-Inverse Determination of Design Parameter Boundaries for Systems Subject to Stochastic Disturbances and Uncertainties
David Löbl and Florian Holzapfel /*Technical University of Munich, Germany*/

9:30-10:00

Tool Chain for Model-Based Flight Mechanical Evaluation in Preliminary Design for Commerical Transoprt Aircraft with Electronic Flight Control Systems
Vikram Krishnamurthy, Alexander Hamann and Robert Luckner /*Berlin University of Technolgy, Germany*/

10:00-10:30

Identification of Airplane Aerodynamic Coefficients
Jacek Pieniążek and Piotr Cieciński /*Rzeszow University of Technology, Poland*/

Room B:	UAV Control and Dynamic II

Chair: Robert Głębocki

9:00-9:30

UAV Control System Reconfiguration Under Physical Constrains
Marcin Zugaj /*Warsaw University of Technology, Poland*/

9:30-10:00

Reconfiguration Control Method for Faulty Actuator on UAV
Adele Boche, Henry De Plinval and Jean-Loup Farges /*ONERA, France*/

10:00-10:30

Camera-Lidar Navigation for Large Unmanned Aircraft: Modular System Design and Safe Closed-Loop Testing Methodology
Franz Andert, Nikolaus Ammann and Martin Laubner /*DLR, Germany*/

Room C:	Sensors and Systems II

Chair: Bogusław Dołęga

9:00-9:30

Transport Delay in the Distributed Flight Control System of an Experimental Multi-Body Aircraft with Wireless Communication
Alexander Kothe, Alexander Behrens, Danny Nowka, Johannes Zieglmeier and Robert Luckner /*Berlin University of Technolgy, Germany*/

9:30-10:00

The New Functions of Helmet Mounted Display Systems for Polish Military Helicopters
Andrzej Szelmanowski, Andrzej Pazur, Sławomir Michalak and Paweł Janik /*Air Force Institute of Technology, Poland*/

10:00-10:30

Planar Air-Bearing Microgravity Simulator for Testing Satellite GNC Subsystem
Tomasz Rybus, Jakub Oleś, Piotr Osica, Karol Seweryn, Kamil Tarenko and Radosław Moczydłowski /*Polish Academy of Sciences, Poland*/
Jan Kindracki, Łukasz Mężyk, Przemysław Paszkiewicz and Piotr Wolański /*Warsaw University of Technology, Poland*/

Room B:	UAV Control and Dynamic III

Chair: Maciej Zasuwa

11:00-11:30

Black-Box System Identification of a Quadrotor UAV Using Dynamic Neural Network
Jimoh O. Pedro and Muhammed Dangor /*University of the Witwatersrand, South Africa*/

11:30-12:00

Analysis of the Pilot interaction with the Control Adapting System for UAV
Antoni Kopyt and Marcin Zugaj /*Warsaw University of Technology, Poland*/

Room C:	Spacecraft Control and Dynamic III

Chair: Jan Kindracki

11:00-11:30

Advanced AOCS Verification Techniques for Nonlinear Propellant Sloshing in Spacecraft
Manuel Hahn /*DLR, Germany*/
Stefan Adami /*Technical University of Munich, Germany*/
Roger Forstner /*Bundeswehr University Munich, Germany*/

11:30-12:00

Vision Based Navigation for Satellite Docking
Mariusz Jacewicz and Robert Głębocki /*Warsaw University of Technology, Poland*/

Conference Venue

CZIiTT Building, Warsaw University of Technology

4 Rektorska str.

Warsaw, Poland

N52.218003, E21.0080783

https://goo.gl/maps/UQApKGZKnd22