Program in detail:

Monday, June 04, 2018		
Registration	08:30 18:30	UAc Atrium
Mon1 - Opening Session Maria Gabriela Queiroz, Vive-Rector of the University of the Azores Bruno Pacheco, Regional Director for Science and Technology José Manuel Bolieiro, Mayor of Ponta Delgada José Boaventura Cunha, Vice-President of APCA Alberto Cardoso, CONTROLO2018 General Chair, University of Coimbra	09:30 10:00	UAc Aud. N.
Mon2 –Plenary Session "Micro-Data Learning for Animal-Like Adaptation in Robots" Keynote Speaker: Jean-Baptiste Mouret (INRIA, FR) Chairs: Hélia Guerra and Fernando Lobo Pereira	10:00 10:50	UAc Aud. N.
Coffee break	10:50 11:20	UAc Atrium
Mon3A - Parallel Session SS-ADG2EP(I): Special Session on Applications of Differential Geometry to Engineering Problems (I) Chairs: Fátima Silva Leite and Luís Machado Papers: #03 - Controllability of the kinematic equations describing pure rolling of Grassmannians Authors: Fátima Pina and Fátima Silva Leite #33 - Controllability of Rolling Symmetric Spaces Authors: Krzysztof Krakowski and Fátima Silva Leite #48 - Real Stiefel Manifolds: an Extrinsic Point of View Authors: Knut Hueper and Florian Ulrich #57 - Constructive Proof for Complete Controllability of a Rolling Pseudo-Hyperbolic Space Authors: André Marques and Fátima Silva Leite	11:20 12:40	UAc Aud. N.

13th APCA International Conference on Automatic Control and Soft Computing

Ponta Delgada, Azores, Portugal ▪ June 4-6, 2018

Monday, June 04, 2018

Mon3B - Parallel Session

SS-ACE(I): Special Session on Advances in Control Education (I)

Chairs: Katarina Zakova and Mikulas Huba

Papers:

#12 - Description of a New Servo Motor Optimized for Educational Robotic Applications

Authors: João Silva, Paulo Costa and José Gonçalves

#19 - FTsim: a 3D tool for teaching automation concepts

Authors: Nejc Ilc and Uros Lotric

#38 - Flexy: An Open-source Device for Control Education

Authors: Martin Kaluz, Lubos Cirka and Miroslav Fikar

#46 - The secrets of Segway revealed to students: revisiting the inverted pendulum

Authors: Teresa Azevedo Perdicoulis and Paulo Lopes dos Santos

	11:20	UAc
	12:40	Aud. S.

Lunch break	12:40	UAc
	14:00	Atrium

Mon4A - Parallel Session

Control Theory & Applications and Optimal Control (I)

Chairs: Bertinho A. Costa and Paulo Oliveira

Papers:

#32 - On Unknown-input Observer Design for Linear Discrete-time Positive Systems

Authors: Dusan Krokavec and Anna Filasova

#35 - Robust control of a Thermal Unstable PDE system

Authors: José Igreja and João Miranda Lemos

#37 - Optimization conditions for some fractional problems

Authors: Ricardo Almeida

#44 - On the state-space realization of 2-periodic image behaviors

Authors: Diego Napp, Ricardo Pereira, Raquel Pinto, Paula Rocha and José Aleixo

#51 - A Novel Control Strategy Based on Predictive Control for a Bidirectional Interleaved Three-Phase Converter

Authors: Vitor Monteiro, Tiago Sousa, Júlio Martins, João Aparício Fernandes and João L. Afonso

#55 - A Short Survey on Measure-Driven Optimal Control Problems

Authors: Aram Arutyunov, Dmitry Karamzin and Fernando Lobo Pereira

	14:00	UAc
	16:00	Aud. N.

Monday, June 04, 2018

Mon4B - Parallel Session

SS-CI4DPC: Special Session on Computational Intelligence for Data Processing and Control

Chairs: Miguel Barão and César Teixeira

Papers:

#08 - Iterative Design of a Mamdani Fuzzy Controller

Authors: Jérôme Mendes, António Craveiro and Rui Araújo

#09 - Adaptive Control Learning Based on a Similarity Measure

Authors: Teresa Rocha, Simão Paredes, Jorge Henriques, Paulo Carvalho, Alberto Cardoso and Paulo Gil

#14 - Combination of Deep and Shallow Networks for Cyclic Alternating Patterns Detection

Authors: Sheikh Shanawaz Mostafa, Fábio Mendonça, Antonio Ravelo and F. Morgado Dias

#42 - Fuzzy logic model to support innovation risk assessment in ecosystems

Authors: António Abreu, José Martins and João Calado

#124 - Multi-Kalman filter to wind power forecasting

Authors: Paulo Salgado, Getúlio Igrejas and Paulo Afonso

#125 - Evolutionary strategies based on synergy between genes and individuals- An approach to path planning problems

Authors: Paulo Salgado, Getúlio Igrejas and Paulo Afonso

14:00	UAc
16:00	Aud. S.

Coffee break	16:00 16:30	UAc Atrium

Mon5A - Parallel Session

SS-AHE&ESc: Special Session on Applications on Health, Environment and Earth Sciences

Chairs: Rosalina Gabriel and Rui Carneiro Barros

Papers:

#66 - Expert Crowdsourcing for Semantic Annotation of Atmospheric Phenomena

Authors: Hugo Paredes, Arsénio Reis, Paulo Martins, João Barroso and Margarida Liberato

#68 - Optimal control of rodent populations

Authors: João Miguel Ferreira

#71 - Theoretical Approach for How Species Abundance Distributions Change Across Scales

Authors: Saeid Alirezazadeh, Luís Borda-De-Água, Paulo Borges, Francisco Dionísio, Rosalina Gabriel, Henrique M. Pereira and Pedro Cardoso

#73 - Predictive Data Mining in Nutrition Therapy

Authors: Diana Ferreira, Hugo Peixoto, António Abelha and José Machado

#74 - Affordable instrument design for seismic monitoring, Early Warning Systems and control actions to risk mitigation

Authors: Arturo Garcia and Antonio Aguilar

16:30	UAc
18:30	Aud. N.

Mon5B - Parallel Session

Mobile Robotics

Chairs: Sofia Lopes and Paulo Lopes dos Santos

Papers:

#21 - EKF and Computer Vision for Mobile Robot Localization

Authors: Fabricio Coelho, João Pedro Carvalho de Souza, Milena Faria Pinto and André Luís Marcato

#40 - Direct-DRRT*: A RRT Improvement Proposal

Authors: Fabricio Coelho, João Pedro Carvalho de Souza, Milena Faria Pinto and André Luís Marcato

#59 - Navigation System for Mobile Robots Using PCA-based Localization from Ceiling Depth Images: Experimental Validation

Authors: Fernando Carreira, João Calado, Carlos Cardeira and Paulo Oliveira

#63 - On barycentric coordinates in control of a thruster driven spacecraft

Authors: Janusz Jakubiak

#78 - A Stabilizing Controller for Hopping Motions

Authors: André S. Carvalho and Jorge M. Martins

#81 - Optimal Reorganization of a Formation of Nonholonomic Agents Using Shortest Paths

Authors: Amelia C. D. Caldeira, Luis Tiago Paiva, Dalila B M Fontes and Fernando A. C. C. Fontes

16:30	UAc
18:30	Aud. S.

Welcome Reception with "Pico de Honra" at "Salão Nobre da Câmara Municipal de Ponta Delgada" 19:30 CMCPD

Tuesday, June 05, 2018		
Registration	08:30 18:30	UAc Atrium
Tue1A - Parallel Session SS-MSR:T&A: Special Session on Marine Systems and Robotics: Theory and Applications Chairs: Fernando Fontes and Ricardo Pereira Papers: #22 - A Model Predictive Cloud-based Control Scheme for Trajectory-Tracking: Effects of Round-trip Time Over-estimates Authors: Andrea Alessandretti and A. Pedro Aguiar #43 - Cooperative Moving Path Following using Event based Control and Communication Authors: R Praveen Kumar Jain, Andrea Alessandretti, A. Pedro Aguiar and João Borges de Sousa #77 - A Model Predictive Control Scheme for Autonomous Underwater Vehicle Formation Control Authors: Rui Gomes and Fernando Lobo Pereira #83 - Formation control of surface marine vehicles for an underwater target tracking using range information Authors: David Moreno-Salinas, Naveena Crasta, António M. Pascoal and Joaquin Aranda	09:00 10:20	UAc Aud. N.
Tue1B - Parallel Session SS-ADG2EP(II): Special Session on Applications of Differential Geometry to Engineering Problems (II) Chairs: Knut Hueper and Krzysztof Krakowski Papers: #18 - Fast cosine transform for FCC lattices Authors: Bastian Seifert , Knut Hueper and Christian Uhl #27 - The geometry of quasi-geodesics on Stiefel manifolds Authors: Velimir Jurdjevic, Fátima Silva Leite and Krzysztof Krakowski #36 - Path planning trajectories in fluid environments Authors: Luís Machado, Fátima Silva Leite and Teresa Monteiro #45 - A New Approach to the Essential Manifold Authors: Thomas Bendokat and Knut Hueper	09:00 10:20	UAc Aud. S.
Coffee break	10:20 10:40	UAc Atrium

Tuesday, June 05, 2018

Tue2A - Parallel Session

SS-ACE(II): Special Session on Advances in Control Education (II)

Chairs: José Boaventura da Cunha and Jérôme Mendes

Papers:

#10 - Posicast Based Experiments to Motivate Undergraduates to Control Engineering

Authors: Stefan Vidal, Paulo Moura Oliveira, Josenalde Oliveira, Tatiana Pinho and José Boaventura Cunha

#61 - Flipping the Courses on Automatic Control: Why and How

Authors: Mikulas Huba , Katarina Zakova and Pavol Bistak

#62 - Design of Control Education Interactive Examples via Web Service for OpenModelica

Authors: Katarina Zakova and Michal Cech

#123 - ELSA-Py - Open-Source extension for communication and data management in interactive remote experimentation under iLab Shared Architecture

Authors: Thiago Schaedler Uhlmann, Pedro Henrique dos Santos Sbais and Luciano António Mendes

10:40	UAc
12:00	Aud. N.

Tue2B - Parallel Session

Optimization

Chairs: Teresa Azevedo Perdicoulis and Ricardo Almeida

Papers:

#05 - Improving Household's Efficiency via Scheduling of Water and Energy Appliances

Authors: Joaquim Leitão, Paulo Gil, Bernardete Ribeiro and Alberto Cardoso

#25 - Soft computing optimization for the biomass supply chain operational planning

Authors: Tatiana M. Pinho, João Paulo Coelho, Germano Veiga, Antonio P. Moreira and José Boaventura Cunha

#58 - Simulation-optimization approach for the decision-support on the planning and scheduling of automated assembly lines

Authors: Miguel Vieira, Samuel Moniz, Tânia Pinto-Varela and Ana P. Barbosa-Póvoa

#67 - Hydroponic Greenhouse Crop Optimization

Authors: Miguel Fernandes, Bertinho A. Costa and João M. Lemos

10:40	UAc
12:00	Aud. S.

Tue3 –Plenary Session

"Present and Future of Automatic Control"

Keynote Speaker: João Miranda Lemos (INESC-ID/IST/Univ. of Lisbon, PT)

Chairs: Fátima Silva Leite and António Dourado

12:10	UAc
13:00	Aud. N.

Lunch break

13:00	UAc
14:00	Atrium

Tuesday, June 05, 2018

Tue4A - Parallel Session

Control Theory & Applications and Optimal Control (II)

Chairs: Dusan Krokavec and José Igreja

Papers:

#06 - Swarm Design of Series PID Cascade Controllers

Authors: Paulo Moura Oliveira and Damir Vrancic

#64 - Control of a prostate cancer model using intermittent androgen suppression

Authors: Bertinho A. Costa and J. M. Lemos

#75 - A Recursive Algorithm Based on the Maximum Principle of Pontryagin

Authors: Fernando Lobo Pereira, Sílvio Gama, Nagwa Arafa and Roman Chertovskih

#76 - Maximum Principle for the Optimal Control of the Obukhov Model

Authors: Nagwa Arafa, Sílvio Gama and Fernando Lobo Pereira

#82 - Optimal Control of Irrigation with field capacity modes: characterizing the minimal water consumption solution

Authors: Sofia Lopes, Fernando A C C Fontes, Amélia Caldeira and Rui Pereira

14:00	UAc
15:40	Aud. N.

Tue4B - Parallel Session

PID Based Control Systems

Chairs: Luciano António Mendes and José Gonçalves

Papers:

#02 - Dynamic Performance Analysis of PID and Fuzzy Logic Controllers Applicable in Electrohydraulic Servo Actuator

Authors: Karem Abuowda, David Dyke, Siamak Noroozi and Ivan Okhotnikov

#15 - Evolutionary based tuning approach of $PI^{\lambda}D^{\mu}$ fractional-order speed controller for multirotor UAVs

Authors: Wojciech Giernacki and João Coelho

#16 - Instrumentation and Control of an Industrial Sewing Station

Authors: João Coelho, Pedro Santos, Tatiana M. Pinho, José Boaventura Cunha and Josenalde Oliveira

#53 - Performance Evaluation of a Proportional-Integral with Proportional-Derivative Feedforward Voltage Control for UPSs

Authors: Tiago Sousa, Vitor Monteiro, Júlio Martins, João Aparício Fernandes and João L. Afonso

#56 - Optimizing disturbance rejection by using model-based compensator with user-defined high-frequency gains

Authors: Damir Vrancic, Paulo Moura Oliveira and Mikulas Huba

14:00	UAc
15:40	Aud. S.

Coffee break	15:40	UAc
	16:10	Atrium

Tuesday, June 05, 2018

Tue5A - Parallel Session

System Identification

Chairs: F. Morgado Dias and José Machado

Papers:

#04 - Exploring tissue characterization by temperature-dependent changes on ultrasound backscattered energy, a computer simulation

Authors: André Pedrosa, Mario Pastrana-Chalco, Wagner Pereira and César Teixeira

#07 - Modeling Abstract Concepts For Internet of Everything: A Cognitive Artificial System

Authors: Rahul Sharma, Bernardete Ribeiro, Alexandre Miguel Pinto and Amílcar F. Cardoso

#34 - An Iterative MOLI-ZOFT Apprroach for the Identification of MISO LTI Systems

Authors: Patrícia Gomes Saraiva, Paulo Lopes dos Santos, Felipe Pait, Rodrigo Alvite Romano and Teresa Paula Perdicoulis

#41 - Clustering of Gaussian Random Vector Fields in Multiple Trajectory Modelling

Authors: Miguel Barão and Jorge S. Marques

16:10 UAc
17:30 Aud. N.

Tue5B - Parallel Session

SS-SC&HMS: Special Session on Structural Control and Health Monitoring Systems

Chairs: Arturo Garcia and Anna Filasova

Papers:

#79 - Numerical simulation of torsional response control of a plan-eccentric mass distribution building by using Magnetorheological dampers

Authors: Manuel Braz-César, Pedro Folhento and Rui Barros

#80 - Fuzzy controller optimization using a genetic algorithm for non-collocated semi-active MR based control of a three-DOF framed struture

Authors: Manuel Braz-César, Pedro Folhento and Rui Barros

#86 - Seismic and Wind Response Control of Cantilevered Highway Sign Support using a TMD

Authors: Rui Barros and Fábio Paiva

#87 - The Minimization of Vortex Shedding Vibrations in Telecommunication Towers

Authors: Rui Barros and Dário Vieira

#120 - Study of Structural Response due to Earthquake Excitations: A Hardware Experimental Setup Approach

Authors: Manuel Braz-César, António M. V. Paula, José Gonçalves and Rui Barros

#121 - Evolutionary based BEL controller applied to a magneto-rheological actuator

Authors: Manuel Braz-César, João Coelho and José Gonçalves

16:10 UAc
18:10 Aud. S.

Tuesday, June 05, 2018

APCA General Assembly	17:30 19:30	UAc Aud. N.
Conference Dinner	20:00	Azoris Garden Hotel

Wednesday, June 06, 2018

Departure to Lagoa	09:00	UAc N. Entry

Wed1A - Parallel Session
UAVs - Avionics
Chairs: Damir Vrancic and Janusz Jakubiak
Papers:
#24 - LQR/MMAE Height Control System of a Quadrotor for Constant Unknown Load Transportation
Authors: Pedro Outeiro, Paulo Oliveira and Carlos Cardeira
#26 - Sense and Avoid implementation in a small Unmanned Aerial Vehicle
Authors: Marta Marques, Adriano Brum and João Gomes Mota
#29 - An Autopilot to Make Circular Loops: from Vertical to Horizontal Circular Loops
Authors: José Barahona da Fonseca
#30 - EKF Design for Online Trajectory Prediction of a Moving Object Detected Onboard of a UAV
Authors: Milena Pinto, Fabrício Coelho, João Pedro Souza, Aurélio Melo, André Marcato and Cristina Urdiales

09:30 10:50   Nonagon Room A

Wed1B - Parallel Session
Cyber Physical Systems
Chairs: João Miranda Lemos and Manuel Braz-César
Papers:
#13 - A Dual Reality Simulation Environment for Cyber-Physical Systems
Authors: Fábio Januário, Alberto Cardoso and Paulo Gil
#23 - An overview on visual sensing for automatic control on smart farming and forest management
Authors: Tatiana M. Pinho, João Paulo Coelho, Josenalde Oliveira and José Boaventura Cunha
#28 - Data Anomaly Detection in Wireless Sensor Networks with Application to an Oil Refinery
Authors: Paulo Gil, Hugo Martins, Fábio Januário, Amâncio Santos, Alberto Cardoso and Jorge Henriques
#54 - Cooperative Human-Machine Interaction in Industrial Environments
Authors: Liliana Antão, Rui Pinto, João Reis, Gil Gonçalves and Fernando Lobo Pereira

09:30 10:50   Nonagon Room B

Wednesday, June 06, 2018

Coffee break	10:50 11:20	Nonagon Atrium
Complementary Activity for secondary school students *Workshop "An adventure on exotic wheels"*	11:00 12:45	ExpoLab
Wed2 –Plenary Session "Communicating with Machines" Keynote Speaker: Richard Bowden (University of Surrey, UK) Chairs: Bernardete Ribeiro and Paulo Moura Oliveira	11:20 12:10	Nonagon Aud.
Lunch break	12:15 13:30	Nonagon Atrium
Wed3 – Industry Special Session Invited Speakers: Chairs: João Calado and Jorge Henriques	13:30 14:30	Nonagon Aud.
Wed4 – Closing Session Representative of the University of the Azores Cristina Silva Calisto, Mayor of Lagoa José Virgílio Cruz, Board Member of Nonagon António Dourado, President of the General Assembly of APCA Paulo Gil, CONTROLO2018 Program Chair, NOVA University of Lisbon	14:30 14:45	Nonagon Aud.
Departure from Lagoa	15:00	Nonagon Park
View of the "Lagoa do Fogo"	15:20	
Wed5 – Technical Visit (visit to the "Central Geotérmica do Pico Vermelho")	15:45	
Tea break at "Fábrica do Chá da Gorreana"	17:00	
Visit to "Lagoa das Furnas"	18:30	
Visit to "Caldeiras das Furnas"	19:30	
Dinner at Furnas	20:00	
Return to Ponta Delgada	22:00	