10th Summer Workshop on Interval Methods, and 3rd International Symposium on Set Membership Applications, Reliability and Theory.

(SWIM - SMART 2017) – PROGRAMME

(Please be aware that presentation time is 20 minutes and 10 minutes for Q&A.)

DAY 1

Session 1: Mathematics 1

Time	Title	Authors
9:00 am - 9:30 am	Opening Session	
9:30 am - 10:00 am	Rigorous Function Calculi for Hybrid Systems and Beyond	Pieter Collins, Davide Bresolin, Luca Geretti and Tiziano Villa
10:00 am - 10:30 am	Generation of Test matrices with Specified Eigenvalues	Katsuhisa Ozaki and Takeshi Ogita
10:30 am - 11:00 am	Coffee break	

Session 2: Mathematics 2

Time	Title	Authors
11:00 am - 11:30 am	Accurate Numerical Solutions of Linear Systems	Ryota Ochiai, Takeshi Terao and Katsuhisa Ozaki
11:30 am - 12:00 pm	Fast verification methods for proving non-singularity of matrices	Takeshi Terao and Katsuhisa Ozaki

Session 3: Implementation

Time	Title	Authors
12:00 pm - 12:30 pm	Interval-based QuickXplain Algorithm	Adrien Bisutti, Julien Alexandre dit Sandretto, Alexandre Chapoutot, and R é mi Delmas
12:30 pm - 1:00 pm	Extending interval and zonotopic set computation to polytopic set computation for nonlinear discrete-time systems	Jian Wan
1:00 pm - 3:00 pm	Lunch	

Session 4: Control Systems 1

Time	Title	Authors
3:00 pm - 3:30 pm	Interval-Based Techniques for Variable-Structure and Backstepping Control of Nonlinear Multi-Input Multi-Output Systems	Andreas Rauh, Julia Kersten, and Harald Aschemann
3:30 pm - 4:00 pm	Observer-based state feedback for a class of interval Model: Application to multi-Dof micro-positioning system	Mounir Hammouche, Philippe Lutz and Micky Rakotondrabe
4:00 pm - 4:30 pm	Interval Methods for Robust Gain Scheduling Controllers	Julia Kersten, Andreas Rauh and Harald Aschemann
4:30 pm - 5:00 pm	Coffee break	

Session 5: Robotics and Autonomous Systems 1

Time	Title	Authors
5:00 pm - 5:30 pm	BoxRRT* - A Reliable Motion Planner	Adina M. Panchea, Alexandre Chapoutot and David Filliat
5:30 pm - 6:00 pm	Vision based Pose domain characterization of an Unmanned Aerial Vehicle using Interval Analysis	Ide-Flore Kenmogne, Vincent Drevelle and Eric Marchand

END OF DAY 1

DAY 2

Session 6: Neural Networks

Time	Title	Authors
9:00 am - 9:30 am	Interval Methods for Resolving Neural Computation Issues	S. P. Adam, D. A. Karras, M. D. Magoulas and M. N. Vrahatis

Session 7: Control Systems 2

Time	Title	Authors
9:30 am - 10:00 am	Tight interval state estimator based on output set-inversions	Nacim Meslem and Nacim Ramdani
10:00 am - 10:30 am	A bounded-error quaternion-based attitude estimation approach	Nacim Ramdani and Sylvain Miossec
10:30 am - 11:00 am	Coffee break	

Session 8: Robotics and Autonomous Systems 2

Time	Title	Authors
11:00 am - 11:30 am	An Interval Approach to Multiple UAV Collision Avoidance	James A. Douthwaite, Allan De Freitas and Lyudmila S. Mihaylova
11:30 am - 12:00 pm	Robust Motion Planning Based on Sliding Horizon and Validated Simulation	Elliot Brendel, Julien Alexandre dit Sandretto, and Alexandre Chapoutot

Session 9: Stability and Viability Theory

Time	Title	Authors
12:00 pm - 12:30 pm	Contractor Based Viability Algorithms	St é phane Le M é nec
12:30 pm - 1:00 pm	Eulerian state estimation	Thomas Le M é zo, Luc Jaulin and Benoıt Zerr
1:00 pm - 3:00 pm	Lunch	

Session 10: Control Systems 3

Time	Title	Authors
3:00 pm - 3:30 pm	Nonlinear Optimal Control via Occupation Measures and Interval Analysis	Nicolas Delanoue, S é bastien Lagrange and Mehdi Lhommeau
3:30 pm - 4:00 pm	The Box Regularized Particle Filter: A probabilistic set-membership observer	Nicolas Merlinge, Karim Dahia, H é lene Piet-Lahanier, James Brusey, Nadjim Horri
4:00 pm - 4:30 pm	Extended Quantified Set Inversion Algorithm with Applications to Control	Pau Herrero and Miguel A. Sainz
4:30 pm - 5:00 pm	Coffee break	

Session 11: Robotics and Autonomous Systems 3

Time	Title	Authors
5:00 pm - 5:30 pm	Localization for Group of Robots using Matrix Contractors	Nisha Rani Mahato, Luc Jaulin and Snehashish Chakaverty
5:30 pm - 6:00 pm	Bandwidth efficient concurrent ranging and communication for localisation in underwater acoustic networks	Jan Sliwka, Andrea Munafo, Roberto Petroccia

Session 12: Applications

Time	Title	Authors
6:00 pm - 6:30 pm	Comparison between Particle Filter and Interval Analysis for Wind Farm Targets Detection by Multistatic Radar System	Waleed al Mashhadani

7:30 pm	Official dinner

END OF DAY 2

DAY 3

Time	Title	Authors
9:00 am - 10:00 am	Interval vs Set-membership Approaches: Application to State/Parameter Estimation and Fault Detection	Professor Vicenç Puig, Polytechnic University of Catalonia, Barcelona, Spain

Session 13: Image Processing

Time	Title	Authors
10:00 am - 10:30 am	Interval-state cellular automata and their applications to image segmentation	Irina Voiculescu, Imre Boros, Nicolae Popovici, Laura Diosan and Anca Andreica
10:30 am - 11:00 am	Primitive shapes recognition using interval methods	Salvador Pacheco
11:00 am - 11:30 am	Coffee break	

Session 14: Fault Diagnosis and Fault Tolerant Control

Time	Title	Authors
11:30 am - 12:00 pm	Set-membership functional diagnosability through linear functional independence	Carine Jauberthie, Nathalie Verdiere, Louise Trav é -Massuyes
12:00 pm - 12:30 pm	Examples on Verified Diagnosis of Safety Critical Dynamic Systems Based on Kaucher Interval Arithmetik	Stefan Schwab, Oliver Stark and Soeren Hohmann
12:30 pm - 1:00 pm	Fault Tolerant Control using Viability Theory	Vicenç Puig, Majid Ghaniee Zarch and Javad Poshtan

Session 15: Robotics and Autonomous Systems 4

Time	Title	Authors
1:00 pm - 1:30 pm	Improving Guaranteed Coverage Assessment of a Robotic Survey in the Translation Invariant Case	Vincent Drevelle
1:30 pm - 2:00 pm	Guaranteed SLAM - An Interval Approach	Mohamed Mustafa, Eduard Codres, Nicolas Delanoue, and Alexandru Stancu

Session 16: Stability and Viability Theory 2

Time	Title	Authors
2:00 pm - 2:30 pm	A comprehensive presentation of the research conducted in new methods for stability analysis at The University of Manchester	Alexandru Stancu, Eduard Codres, Vicenç Puig, Mario Martinez, Mohamed Mustafa, Salvador Pacheco
2:30 pm - 3:00 pm	Computing an Inner Approximation of the Viability Kernel using capture tubes	Eduard Codres, Joaquim Blesa, Mario Martinez, and Alexandu Stancu
3:00 pm - 5:00 pm	Lunch	

END OF DAY 3