

SWIM PALAISEAU/VERSAILLES

2019

SUMMER WORKSHOP ON INTERVAL METHODS

July 23rd, Tuesday	
13.00 – 13.30	Welcome coffee and registration
13.30 – 14.00	Opening
Interval Analysis: Implementation and Libraries	
14.00 – 14.30	L. Benet , M. Forets, D. P. Sanders, and C. Schilling – TaylorModels.jl: Taylor models in Julia and its application to validated solutions of ODEs
14.30 – 15.00	N. Revol – The MPFI library revisited
15.00 – 15.30	E. Vorontsova – Interval Computations in Julia programming language
15.30 – 16.00	K. A. Nasiotis, D. López, S. P. Adam , and L. G. Casado – Set Inversion Via Interval Analysis - A Study on Parallel Processing Implementation
16.00 – 16.30	Coffee break
Differential Equations I	
16.30 – 17.00	J. Brown and F. Pessaux – Interval-Based Simulation of Zélus IVPs Using DynIbex
17.00 – 17.30	S. Selivanova and M. Ziegler – Turnkey Solutions to PDEs in Exact Real Computation
17.30 – 18.00	J. Damers , L. Jaulin, and S. Rohou – Guaranteed interval integration for large initial boxes

July 24th, Wednesday	
Robust control I	
10.00 – 10.30	J. Tillet , L. Jaulin, and F. Le Bars – Validation of a controller under state constraints
10.30 – 11.00	A. Lefort – Efficient computation of the set of stabilizing controllers for an LTI System using intervals
11.00 – 11.30	Coffee break
11.30 – 12.00	J. Kersten , A. Rauh , and H. Aschemann – Analyzing Uncertain Dynamical Systems After State-Space Transformations Into Cooperative Forms
12.00 – 12.30	T. Nico, L. Jaulin , and B. Zerr – Guaranteed Polynesian Navigation
12.30 – 14.00	Lunch break
14.00 – 15.30	Round table: open problems
16.00 –	Social Event in Versailles

July 25th, Thursday

State Estimation	
10.00 – 10.30	D. Merhy , C. Stoica Maniu, T. Alamo, E. F. Camacho, T. Chevet, and M. Makarov – Zonotopic set-membership state estimation applied to an octorotor model
10.30 – 11.00	T. Gatto, L. Meyer , and H. Piet-Lahanier – An Orthotope Particle Filter for state estimation of Non Linear Discrete-Time Systems
11.00 – 11.30	Coffee break
Computation and methods	
11.30 – 12.00	M. Lange – Rigorous bounds for ill-posed linear programming problems
12.00 – 12.30	O. Mullier and J. Alexandre dit Sandretto – Computation of integrals with interval endpoints
12.30 – 14.00	Lunch break
Fault detection and calibration	
14.00 – 14.30	S. Liu , J.-J. Gehrt, D. Abel, and R. Zweigel – Identification of Multi-Faults in GNSS Signals using RSIVIA under Dual Constellation
14.30 – 15.00	H. Dbouk and S. Schön – Interval based Fault Detection and Exclusion for GNSS
15.00 – 15.30	R. Voges and B. Wagner – Extrinsic Calibration Between a 3D Laser Scanner and a Camera Under Interval Uncertainty
15.30 – 16.00	Coffee break
Differential Equations II	
16.00 – 16.30	A. Rauh and J. Kersten – Toward the Development of Iteration Procedures for the Interval-Based Simulation of Fractional-Order Systems
16.30 – 17.00	J. Alexandre dit Sandretto – Confidence-based Contractor, Propagation and Potential Cloud for Differential Equations
17.00 – 18.00	Round table: publication strategy on intervals

July 26th, Friday

Localization	
9.30 – 10.00	V. Drevelle – Bounded-error victim localization for UAV-based search and rescue operations
10.00 – 10.30	N. Ramdani , D. Zeinalipour-Yazti, M. Karamousadakis, and A. Panayides – Towards an interval fingerprinting approach for indoor localization
10.30 – 11.00	S. Rohou , P. Franek, C. Aubry, and L. Jaulin – Verifying the existence of loops in robot trajectories
11.00 – 11.30	Coffee break
Robust control II	
11.30 – 12.00	A. Kumar and O. Mullier – Guaranteed Trajectory Tracking using Flatness
12.00 – 12.30	É. Bertin , E. Brendel, B. Hérisse, A. Chapoutot, and J. Alexandre dit Sandretto – Prospects on the application of necessary optimality conditions on the resolution of the Goddard problem with unknown bounded parameters using interval arithmetics
12.30 – 13.00	Closing
13.00 – 14.00	Picnic or take away meal