

UTOPIAE

week 1: **GVW-II** & **OSE5** in Ljubljana, Slovenia

	Monday	Tuesday	Wednesday	Thursday	Friday
	18th November	19th November	20th November	21st November	22nd November
8:50-9:00	Welcome			Registration	
9:00-9:50	Introduction to Algorithms -	Cloud Computing (Aleš Zamuda)	Introduction to Test Driven Development - Part 1 (Dario Campagna)	Keynote talk (ESA)	Keynote talk (UTOPIAE)
9:50-10:30	Sorting (Nino Bašič)			Session on distributed optimisation tools	Session on Optimal Control
10:30-11:00	coffee break				
11:00-12:30	Introduction to Programming with Python (Luka Fuerst)	Full-Stack Web Development (Dejan Lavbič)	Introduction to Test Driven Development - Part 2 (Dario Campagna)	Session on space exploration and decision making	Session on Optimal Control
12:30-14:00	lunch				
14:00-15:30	Introduction to Mobile Sensing (Veljko Pejovič)	Introduction to Agile Software Development (Dario Campagna)	Visit to high school & UTOPIAE presentations	Session on optimisation techniques under uncertainty	Session on Optimisation of Space System
15:30-16:00	coffee break				
16:00-17:00	Introduction to Parallel and Distributed Computing (Uroš Lotrič)	Continuous improvement through scientific thinking (Dario Campagna)	How agile can impact on your work? (Dario Campagna)	Panel discussion	Panel discussion
17:00-17:30				Session on optimal control	Session on Optimisation for Aerospace Systems and Manufacturing
17:30-18:20					
19:45-21:30				Social Dinner	

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GVW-II Lecturers

Nino Bašič - FAMNIT, University of Primorska, Slovenia

Luka Fuerst - FRI, University of Ljubljana, Slovenia

Veljko Pejović, FRI, University of Ljubljana & Jožef Stefan Institute

Uroš Lotrič - FRI, University of Ljubljana, Slovenia

Aleš Zamuda - FERI, University of Maribor, Slovenia

Dejan Lavbič - FRI, University of Ljubljana, Slovenia

Dario Campagna - ESTECO, Trieste, Italy

OSE5 presentations

Thursday

Session on distributed optimisation tools

09:50 Gregor Papa, JSI: "Optimisation platform for remote collaboration of different teams"

10:10 Carlos Kavka, ESTECO: "Tools and strategies for multidisciplinary design optimization"

Session on space exploration and decision making

11:00 Akira Oyama, JAXA: "Proposal of an Optimization Benchmark Problem Based on Lunar Lander Landing Site Selection"

11:20 Bogdan Filipic, JSI: "Finding an Optimal Lunar South Pole Landing Site at a Reduced Computational Cost"

11:40 Lorenzo Gentile, TH Koeln: "An optimisation approach for designing optimal observation campaigns: application to low-resources deep space missions"

12:00 Kai Wah Chan, University of Bremen: "Polytopal Approximation of Dynamically Constrained Convex Sets"

Session on optimisation techniques under uncertainty

14:00 Margarita Antoniu, JSI: "Bounding limit expectations of Markov chains using evolutionary algorithms"

14:20 Thagata Basu, Dhuram University: "A Review of Convex Optimisation Techniques for Piecewise Differentiable Functions"

14:40 Dani Irawan, TH Koeln: "Cooperative-Coevolution with Two-Stage-Grouping Based on Variable Effects and Interactions for Large Scale Global Optimization"

15:00 Lorenzo Gentile, TH Koeln: "An efficient surrogate model-based bi-level optimisation algorithm"

Session on optimal control

17:00 Francesco Marchetti, University of Strathclyde: "Intelligent Control by Genetic Programming"

17:20 Callum Wilson, University of Strathclyde: "Learning to Control a Spacecraft"

17:40 Kostas Konstantinidis, ESA ACT: "Non-linear uncertainty propagation in a Guidance, Navigation & Control system for approach operations using Differential Algebra"

18:00 Leon Stubbing, TU Delft: "Improving the Evolutionary Optimization of interplanetary low-thrust trajectories using Machine Learning surrogates"

Friday

Session on optimal control

09:50 Cristian Greco, University of Strathclyde: "Belief Stochastic Optimal Control for Robust Space Trajectory Design"

10:10 Simao Marto, University of Strathclyde: "Multi-Objective Optimization of Low-Thrust Trajectories under Epistemic Uncertainty"

Session on optimal control

11:00 Erfu Yang, University of Strathclyde: "Improved Model Predictive Control for Hypersonic Vehicle Under Incomplete Data Transmission"

11:20 Erfu Yang, University of Strathclyde: "Application of active disturbance rejection control for hypersonic vehicles with reaction control system faults"

11:40 Matej Petkovic, JSI: "Quantifying the effects of gyroless flying of the Mars Express Spacecraft with machine learning"

12:00 Matthias Knauer, University of Bremen: "Optimization of 5G Satellite Swarms"

Session on Optimisation of Space System

14:00 Gianluca Filippi, University of Strathclyde: "A Multi Layer Evidence Network Model for the Design Process of Space Systems under Epistemic Uncertainty"

14:20 Gianluca Filippi, University of Strathclyde: "Evidence-Based Resilience Engineering of Dynamic Space Systems"

14:40 Daniel Krpeligg, Durham University: "Employing Agile Principles for Making Decisions during System Design Phases"

15:00 Anabel Del Val, Von Karma Institute: "On the Inference of Chemical Models Parameters for Tomorrow's Space Journeys: an Overview on Reusable and Ablative Space Systems"

Session on Optimisation for Aerospace Systems and Manufacturing

17:00 Elisa Morales, Italian Aerospace Research Centre: "Robust Airfoil Design using Gradient Based Risk Function Approximations"

17:20 Peter Zenodo, ESTECO: "Multi-fidelity efficient global optimization for propeller optimisation under uncertainty"

17:40 Christian Sabater Campomanes, DLR: "Introducing Efficient Surrogate Based Methods for the Robust Design of Shock Control Bumps"

18:00 Ismael Vaz, University of Minho: "Global Direct Search and an application to Additive Manufacturing (3D Printing)"

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week 2: WoC in Trieste, Italy

	Monday	Tuesday	Wednesday	Thursday	Friday
	25th November	26th November	27th November	28th November	29th November
9:15-9:30	Welcome	Stand-up meeting	Stand-up meeting	Stand-up meeting	Final presentations
9:30-10:00	What It Takes to Craft a Software Product - The ESTECO Example (Paolo Vercesi)	Programming session	Programming session	Programming session	
10:00-11:00	VOLTA Workshop (Luca Battaglia, Matteo Francia)				
11:00-11:15	coffee break				
11:15-13:00	VOLTA Workshop (Luca Battaglia, Matteo Francia)	Programming session	Programming session	Programming session	Award ceremony & Closing remarks
13:00-14:00	lunch				
14:00-15:00	VOLTA Workshop (Luca Battaglia, Matteo Francia)	Programming session	Programming session	Programming session/Final presentation preparation	
15:00-16:00	Programming session				
16:00-16:15	coffee break				
16:15-18:00	Programming session	Programming session	Programming session	Final presentation preparation	
19:00-21:00	Social Dinner				