Sensitivity Analysis of Model Output Conference
March 14-16, 2022

Florida State University
Conference Center, Rooms 101 & 103
555 W. Pensacola Street
Tallahassee, Florida 32306-1640

Contents

Sensitivity Anaysis of Model Output

The 10th SAMO conference will be held at Florida State University, Tallahassee, Florida. The dates of the conference are March 14 -16, 2022. The venue is Florida State Conference Center.

The SAMO conference is devoted to advances in research on sensitivity analysis methods and their interdisciplinary applications. The SAMO conferences are held every three years. The aim of the SAMO conferences is to bring together users of sensitivity analysis in all disciplines of science. Sensitivity analysis methods are powerful tools in physics, operations research, chemistry, biology, engineering, environmental science, nuclear and industrial safety, economics and finance.

Committees

SAMO Executive Committee

- Giray Ökten - President

- William Becker - co-President

- Samuele Lo Piano - co-President

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- Billy Oates (Department of Mechanical Engineering, FSU)

Timetable

KL: Keynote

S: Session

P: Poster

CT: Concurrent Talk

Monday, 14 of March

8:45–9:00		Introduction	
9:00–9:45	KL	**Keynote 1. Room 103.** Art Owen	Variable importance and explainable AI
9:45–10:50		**Session 1A: Metamodelling. Room 103.**	
9:50-10:10	CT	Changcong Zhou	Global Sensitivity Analysis Based on Active Subspaces and Kriging
10:10-10:30	CT	Sergei Kucherenko	Comparison of Active Subspaces and Global Sensitivity Measures for Problems with Rotations and Dependent Variables
10:30-10:50	CT	John Barr	Kernel Methods for Global Sensitivity Analysis
9:45–10:50		**Session 1B: Design of experiments. Room 101.**	
9:50-10:10	CT	Franziska Henze	Dynamic Sampling Strategy for Morris' Method of Elementary Effects
10:10-10:30	CT	Elmar Plischke	Sensitivity Analysis with Shapley Effects: Computational Issues
10:50–11:15		**Coffee**	
11:15-12:20		**Session 2A: Sensitivity measures. Room 103.**	
11:20-11:40	CT	Matieyendou Lamboni	Kernel-based sensitivity indices for any model behavior
11:40-12:00	CT	Sebastien Roux	Sensitive partitioning of the model output space: principle and first results
12:00-12:20	CT	Gildas Mazo	Inference for sensitivity indices
11:15-12:20		**Session 2B: Applications. Room 101.**	
11:20-11:40	CT	Ralph Smith	Parameter Subset Selection Techniques to Determine Identifiable Parameters for a Mathematical Model of Antibody Therapies for Neurological Diseases

Time	Type	Speaker	Title
11:40-12:00	CT	Amandine Marrel	Improvements around the use HSIC-based sensitivity analysis for functional data
12:00-12:20	CT	Andrea Saltelli	What can sensitivity analysis contribute to a sociology of quantification?
12:20-2:30		**Lunch and Posters. Room 103.**	
2:30-3:15	KL	**Keynote 2. Room 103.** Juliane Mai	Towards more general sensitivity estimates: Applications considering model structural uncertainties, grouping of parameters, and large-scale analyses
3:15-3:40		**Coffee**	
3:45-4:50		**Session 3A: Metamodelling. Room 103.**	
3:50-4:10	CT	Robert Milton	Global Sensitivity Analysis with Multi-Output Gaussian Processes
4:10-4:30	CT	Yaning Liu	Global Sensitivity Analysis with Surrogate Modeling using Fourier Amplitude Sensitivity Testing
4:30-4:50	CT	Nora Lüthen	Poincare chaos expansions for global sensitivity analysis and surrogate modelling
3:45-4:50		**Session 3B: Sensitivity measures. Room 101.**	
3:50-4:10	CT	Silvana Pesenti	Sensitivity Measures based on Scoring Functions
4:10-4:30	CT	Paul Rochet	Sensibility analysis for non-parametric variable selection
4:30-4:50	CT	Margot Hérin	Proportional marginal effects for sensitivity analysis with correlated inputs

Tuesday, 15 of March

9:00–9:45	KL	**Keynote 3. Room 103.** Agnès Lagnoux	Global Sensitivity Analysis: a novel generation of mighty estimators based on rank statistics
9:45-10:50		**Session 4: Design of Experiments. Room 103.**	
9:50-10:10	CT	Arnald Puy	Sensitivity analysis as a tool to probe into the relation between model complexity and uncertainty
10:10-10:30	CT	Thierry Mara	On performing screening analysis with the Innovative Algorithm
10:30-10:50	CT	Stefano Tarantola	Assessing the Performance of the Scrambled Sobol' Quasi-Number Generator: an application to Interoperability of Smart Electricity Grids
10:50-11:15		**Coffee**	
11:15-12:00	KL	**Keynote 4. Room 103.** Sébastien Da Veiga	A kernel-based ANOVA decomposition: extending sensitivy indices and Shapley effects with kernels
12:00-1:00		**Lunch. Room 103.**	
1:15		**Depart for Wakulla Springs (weather permitting)**	
6:30		**Conference Dinner**	

Wednesday, 16 of March

8:30-9:15	KL	**Keynote 5. Room 103.** Samuele Lo Piano	Understanding the modelling process and model use
9:15–10:20		**Session 5A: Sensitivity measures. Room 103.**	
9:20-9:40	CT	Thierry Klein	Universal sensitivity indices: application to stochastic codes and second level sensitivity analysis
9:40-10:00	CT	Marouane Il Idrissi	Shapley effects for reliability-oriented sensitivity analysis with correlated inputs
10:00-10:20	CT	Shahroz Khan	Intra-sensitivity: An approach to regional sensitivity analysis for studying local behaviour of parametric sensitivities
9:15–10:20		**Session 5B: Applications. Room 101.**	
9:20-9:40	CT	Axelle Hego	GSA of a green roof hydrological model with multivariate inputs and outputs
9:40-10:00	CT	Razi Sheikholeslam	Why and How Uncertainty Matters for Estimating Dissolved Phosphorus in Runoff
10:00-10:20	CT	Katarina Radisic	Sensitivity analysis of a spatio-temporal hydrological model for pesticide transfers
10:20–10:40		**Coffee**	
10:40-11:45		**Session 6A: Metamodelling. Room 103.**	
10:45-11:05	CT	Massimo Aufiero	Surrogate-based global sensitivity analysis with confidence bounds
11:05-11:25	CT	Hui (Alyssa) Duan	Bayesian PCE as a Control Variate Method for Estimating Sobol' Sensitivity Indices
11:25-11:45	CT	Sarazin Gabriel	What is hidden behind the Sobolev kernels involved in the HSIC-ANOVA decomposition?
10:40-11:45		**Session 6B: Applications. Room 101.**	
10:45-11:05	CT	Matthias Van Hove	Comparison of global sensitivity analysis methods for urban scale building stock energy models
11:05-11:25	CT	Laura Swiler	Metamodelling sensitivity approaches versus regression and graphical methods on the basis of Geologic Cases: An International Collaboration
11:25-11:45	CT	Helen Moore	Applying sensitivity analysis for the evaluation of quantitative systems pharmacology (QSP) models
11:45-1:25		**Lunch and Posters. Room 103.**	

1:25-2:10	KL	**Keynote 6. Room 103.** Clémentine Prieur	(Non)linear dimension reduction of input parameter space using gradient information
2:10-2:30	Coffee		
2:30-3:35	**Session 7A: Applications. Room 103.**		
2:35-2:55	CT	Gael Poette	Systematic sensitivity analysis for neutronics (keff computations) and photonics
2:55-3:15	CT	Sabine Maria Spiessl	Performance of the BSPCE Metamodeling Approach using Random and Quasi-Monte Carlo Sampling on the basis of a Time-Dependent Final Repository Model
2:30-3:35	**Session 7B: Sensitivity measures. Room 101.**		
2:35-2:55	CT	Emanuele Borgonovo	Probabilistic Sensitivity via Optimal Transport
2:55-3:15	CT	Ivano Azzini	A novel boosting algorithm for regression problems (bOOstd) and its use for sensitivity analysis
3:15-3:35	CT	Gürkan Sin	A case study of global sensitivity analysis using deep learning on industrially relevant large datasets – Attention to distribtion of effects in DGSM methods
3:35-3:55	Coffee		
3:55-5:00	**Session 8: Sensitivity measures. Room 101.**		
4:00-4:20	CT	Manu Aggarwal	Sobol' indices combined with gamma indices for a more comprehensive sensitivity analysis
4:20-4:40	CT	Duhamel Clément	A SUR adaptation of Bichon criterion for inversion