

# OpenTURNS release highlights

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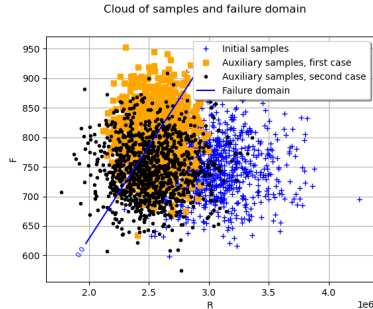


New features since last year in releases:

- v1.20: fall 2022
- v1.21: spring 2023

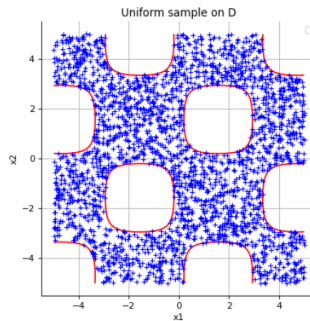
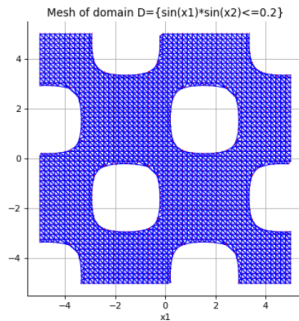
# Cross-entropy importance sampling

- Adaptive importance-sampling base simulation algorithm
- Auxiliary distribution parameters converge at each step with numerical optimization
- Standard and physical space variants
- Very good performance, can be compared to subset
- Like subset, no COV termination criteria



# Uniform distribution over a mesh

- Uniform sampling in any closed set delimited by a generic mesh, any dimension
- Sampling of simplices weighted by volume, then uniform sampling inside simplex
- CDF is obtained by integration at mesh bounds
- Efficient implementation, low-level primitives for tetras, etc ...



## Python distribution channels

- Pip, Conda
- Versions: 3.8-3.11
- OS: Windows, Linux, MacOS
- Architectures: x86\_64, arm64 (MacOS-only)



## Supported Linux distributions

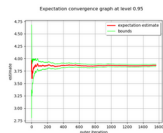
- Ubuntu 20/22
- Debian 11/12
- Fedora 37/38
- CentOS 8
- OpenSUSE 15.4
- Mageia 8
- ArchLinux
- FreeBSD



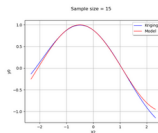
# Documentation improvements

- New usecases: fire satellite, wing weight, Linthurst/Coles datasets
- Lots of new examples: chaos, cv, regression, MLE, functions, integration, enumerate, ...
- Example minigalleries linking to relevant examples
- Lot of time invested in the improvement of the documentation

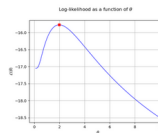
## Examples using the class



Kriging: propagate uncertainties



Kriging : multiple input dimensions



Kriging : draw the likelihood

# Other improvements

- Field to vector metamodeling and sensitivity using KL + chaos
- Chaos expansion for mixed variables
- New BoxCoxFactory method to return directly the underlying linear model
- Enabled Pagmo.moead\_gen, Bonmin.Ecp/iFP optimization algorithms
- Continued bugfix effort (avg 30+ recorded per release + more internally fixed)





Thank you for your attention!  
Any questions?

