IOH Profiler

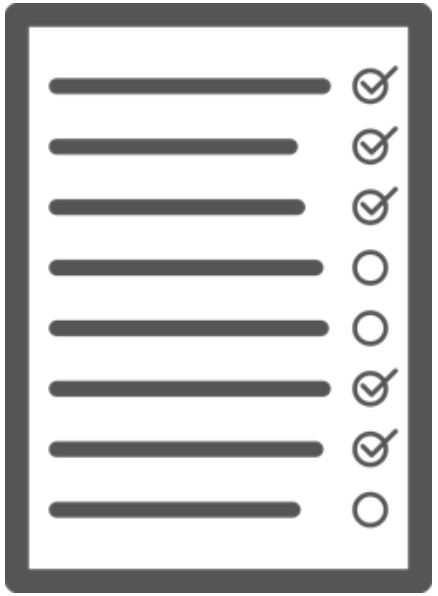
A modular benchmarking platform

Universiteit Leiden
The Netherlands

SORBONNE UNIVERSITÉ

Tel-Hai College

Benchmarking: IOHExperimenter

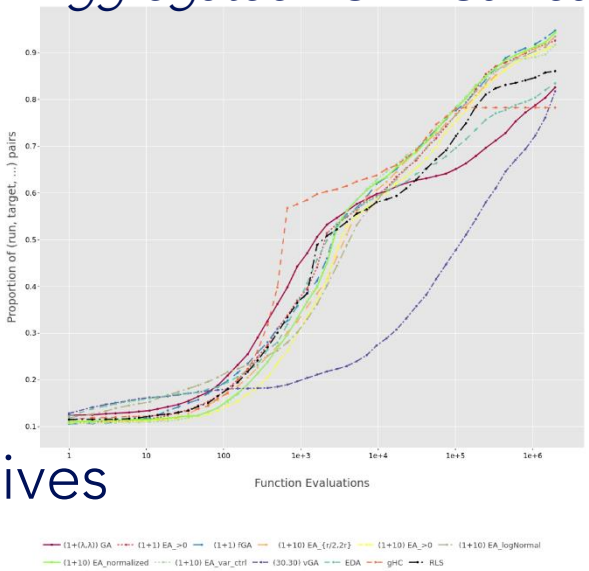


- Easily **extendable** problem suites (currently PBO and BBOB)
- Flexible **logging** system
- Tracking of **adaptive** parameters
- Available in C++, R and Python
- Many algorithms already available

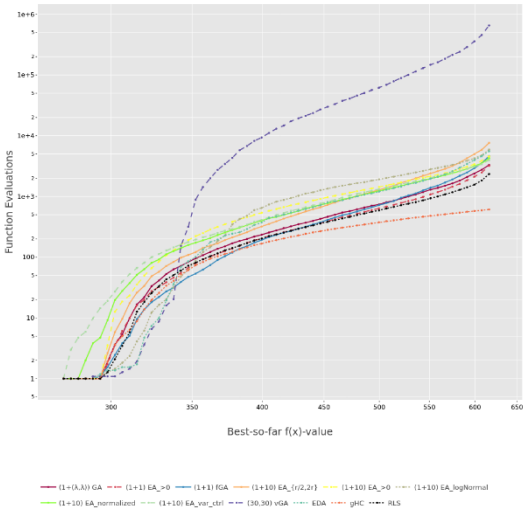
Visualization: IOHAnalyzer

- GUI available **online**, without login (https://iohprofiler.liacs.nl/)
- Highly **interactive** plots
- Performance analysis in fixed-target and fixed-budget perspectives
- Also available as R-package

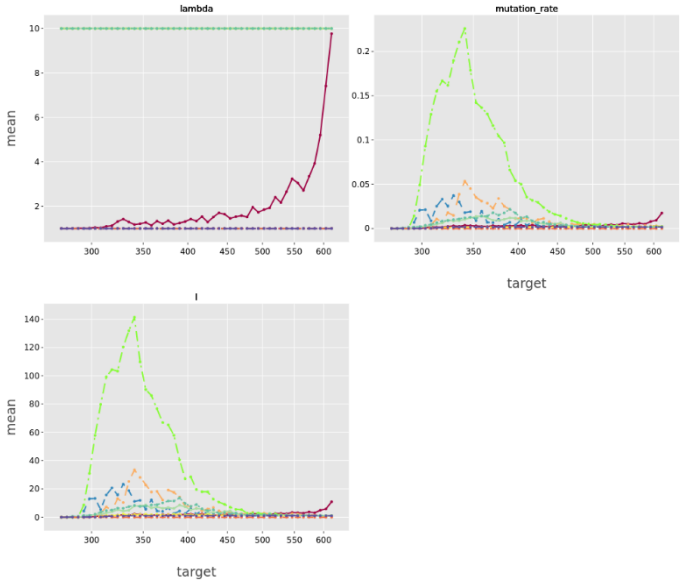
Aggregated ECDF Curves



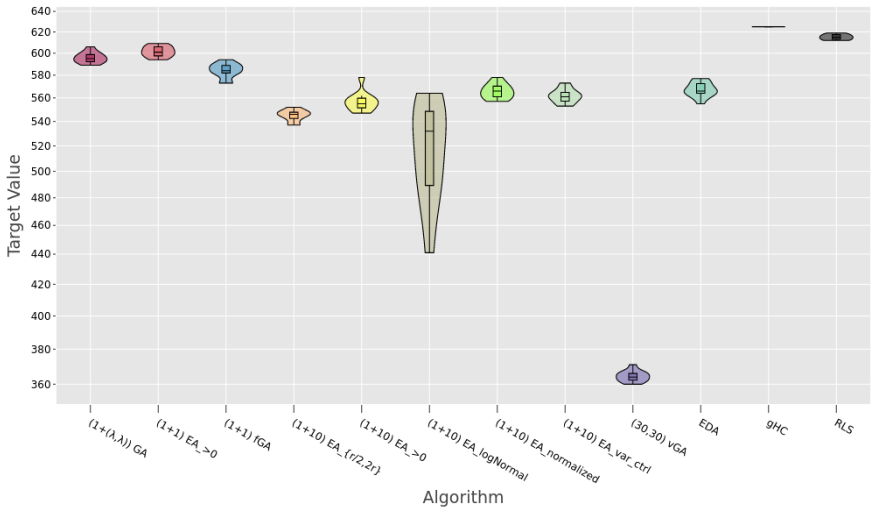
Expected Runtime (ERT)



Adaptive Parameters



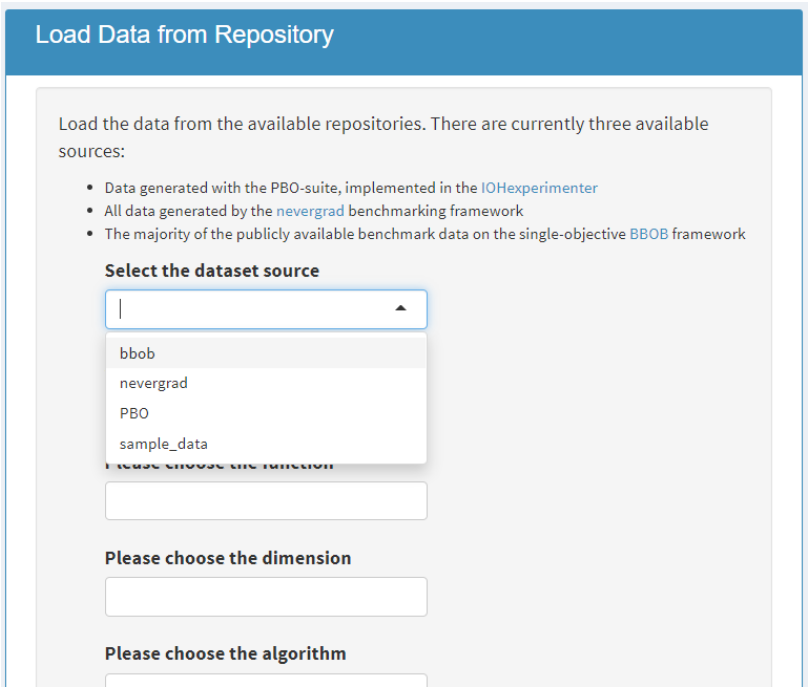
Fixed-Budget Probability Density



Data: IOHData

- Support data in **many formats**:
  - IOHprofiler itself
  - BBOB
  - Nevergrad
  - SOS
  - Additional support in development

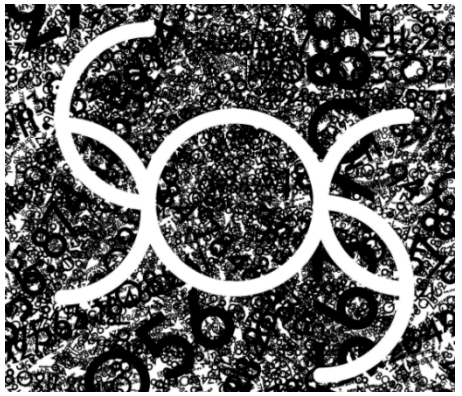
IOH Profiler



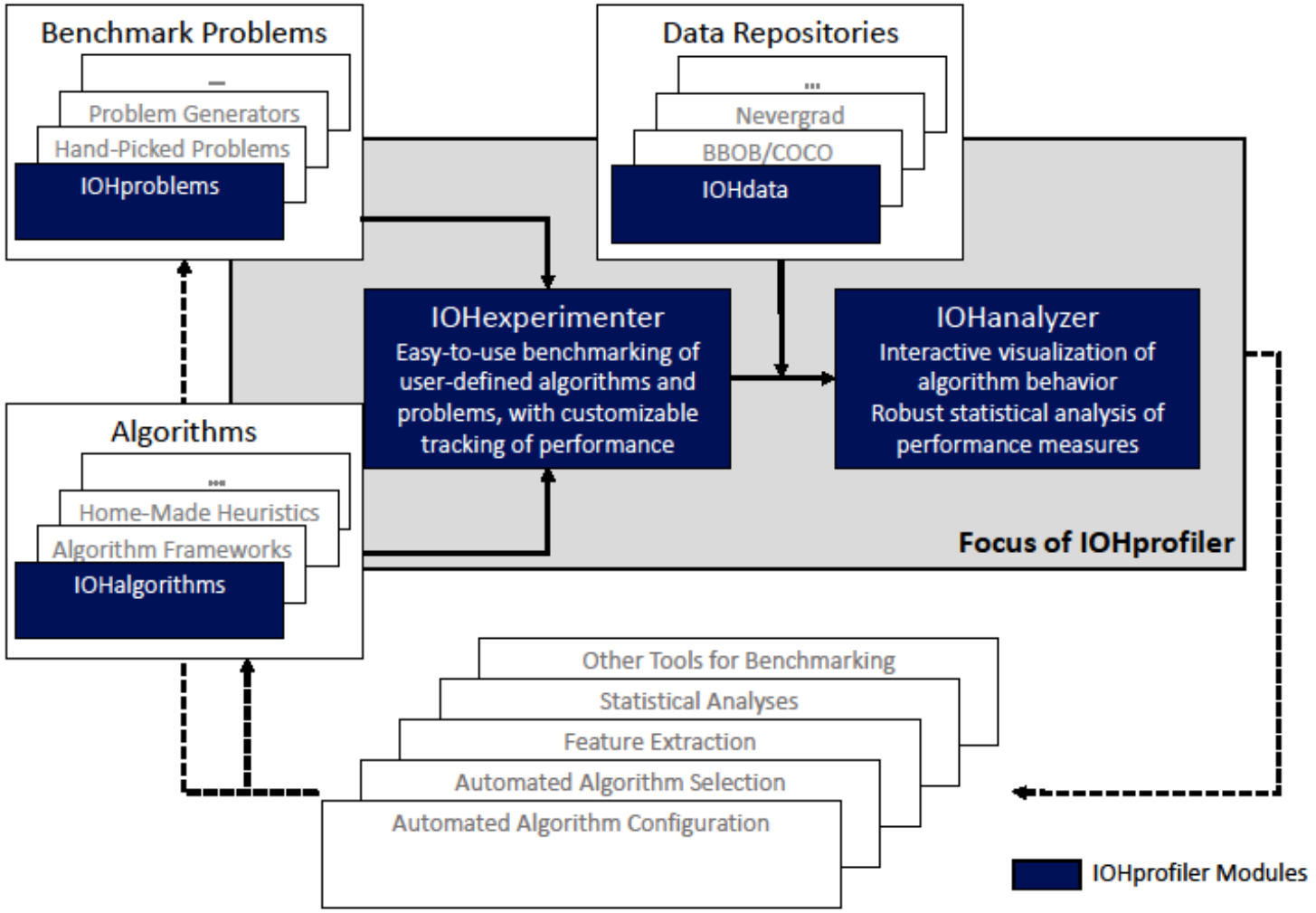
- Many **pre-processed** datasets available on IOHanalyzer directly

COMPARING CONTINUOUS OPTIMISERS: COCO

Nevergrad

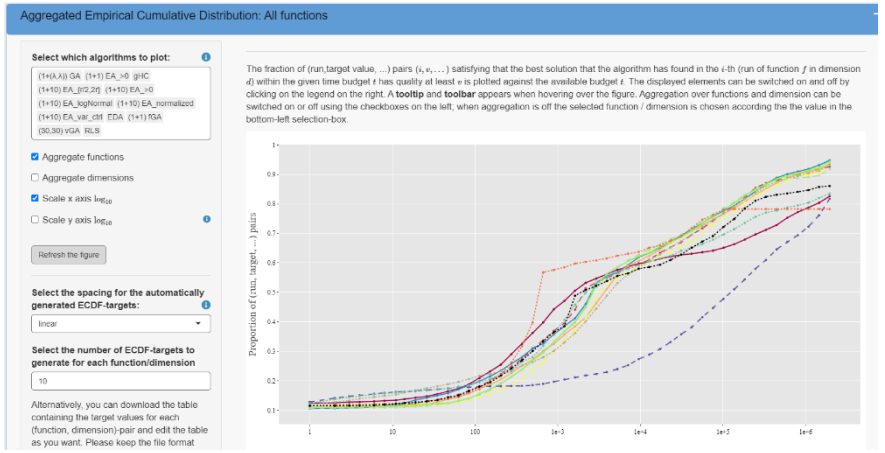


IOHprofiler Architecture Overview



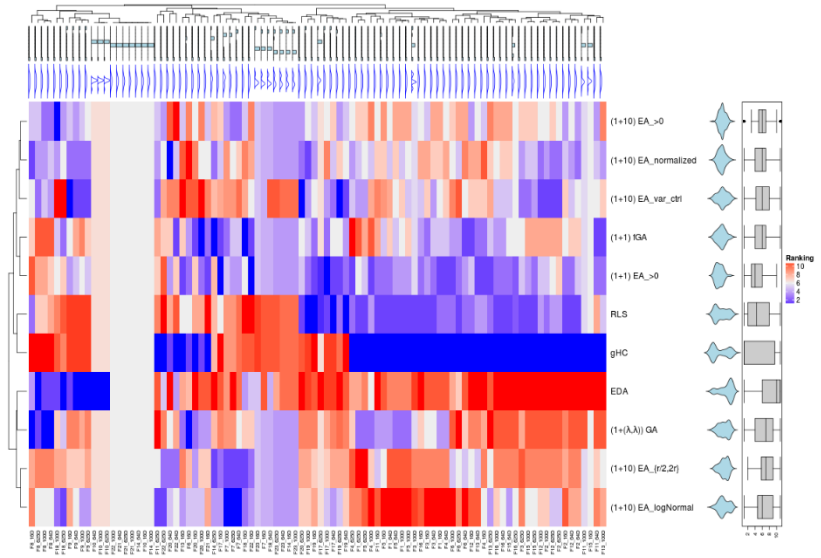
Benefits of IOHprofiler

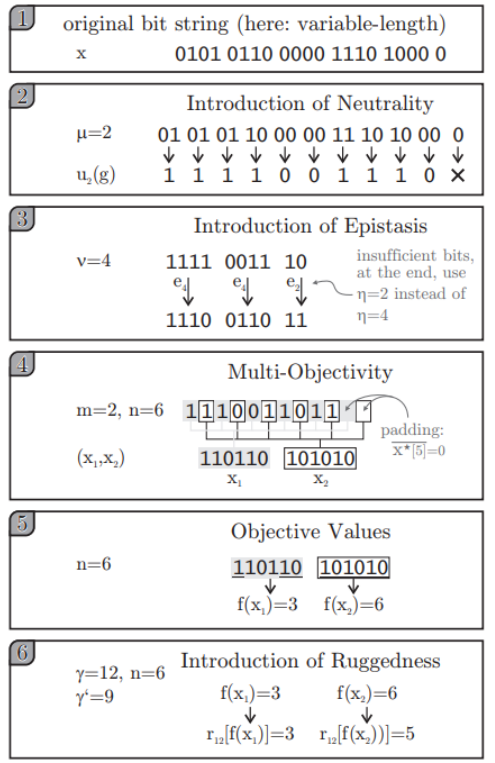
- Effortless integration into your experimental pipeline
- Significantly easier **exploration** of performance data
- Easy access to robust **visualizations** and statistical comparisons
- Interactive data analysis, allowing for **dynamic changes**, e.g. to ECDF targets
- Many common tables and figures for easy integration into **publications**
- Useful tool for **teaching** benchmarking concepts to students



Collaborations

- Integration IOHexperimenter with **ParadisEO** (Johann Dréo)
- GUI for **DSCtool** in IOHanalyzer (Tome Eftimov)
- Implementation of **W-model** in IOHexperimenter (Thomas Weise)
- Integration of IOHexperimenter problems into **Nevergrad**
- We are **always** open to new collaborations!





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