ESSENTIALS

1. Installation
2. Dependencies
3. References
4. Citing pydex

THE BASIC WORKFLOW

1. Importing packages
2. Instantiating a designer
3. Specifying the model
4. Specifying the components
   1. Experimental candidates
      1. Time-invariant (TI) controls
      2. Time-varying (TV) controls
      3. Sampling times
   2. Model parameter values
      1. Nominal parameters
      2. (Pseudo-)Bayesian designs
5. Initialize the designer
6. Designing the experiment
7. Printing the optimal design
8. Plotting the optimal design
9. Apportion

SELECTED EXAMPLES

1. Quick start
2. Ordinary differential equation model

FAQ

1. I was able to initialize properly, but the designer fails after invoking “design\_experiment”.

CORE DESIGNING COMPONENTS

1. Supported solvers
   1. scipy
   2. cvxpy
2. Simulate
3. Experimental candidates
   1. Time-invariant (TI) controls candidates
   2. Time-varying (TV) controls candidates
   3. Sampling times candidates
4. Model parameters
5. Measurable responses
6. Initialize
7. Design experiment
8. Get optimal experiments
9. Save and Loading
   1. Responses
   2. Sensitivities
   3. Atomic information matrices
   4. State
10. Information criteria
    1. Parameter Oriented
       1. D-optimal
       2. A-optimal
       3. E-optimal
    2. Prediction Oriented
       1. Dg-optimal
       2. Di-optimal
       3. Ag-optimal
       4. Ai-optimal
       5. Eg-optimal
       6. Ei-optimal
11. Generating CVaR-Mean sesigns
12. Estimability studies
    1. Subset selection
    2. FIM-based
13. Apportion
    1. Efficient rounding or Adam’s method
    2. Greatest effort apportionment
14. Enumerate candidates
15. Evaluate residuals
16. Evaluate the Fisher Information Matrix (FIM)
    1. Nominal design
    2. (Pseudo-)Bayesian design
17. Evaluate the Predictive Information Matrix (PIM)
    1. Nominal design
    2. (Pseudo-)Bayesian design: UNIMPLEMENTED
18. Normalize sensitivities

VISUALIZATION COMPONENTS

1. Universal
   1. Print optimal candidates
   2. Plot optimal efforts
   3. Plot parity
   4. Show plots
   5. Loggers
2. Low-dimensional
   1. Plot optimal controls
3. Dynamic systems
   1. Plot predictions
      1. Optimal candidates only
      2. All candidates
   2. Plot sensitivities
      1. Optimal candidates only
      2. All candidates
4. CVaR-Mean designs
   1. Plot pareto frontier
   2. Plot criterion c.d.f. (cumulative distribution function)
   3. Plot criterion p.d.f. (probability density function)