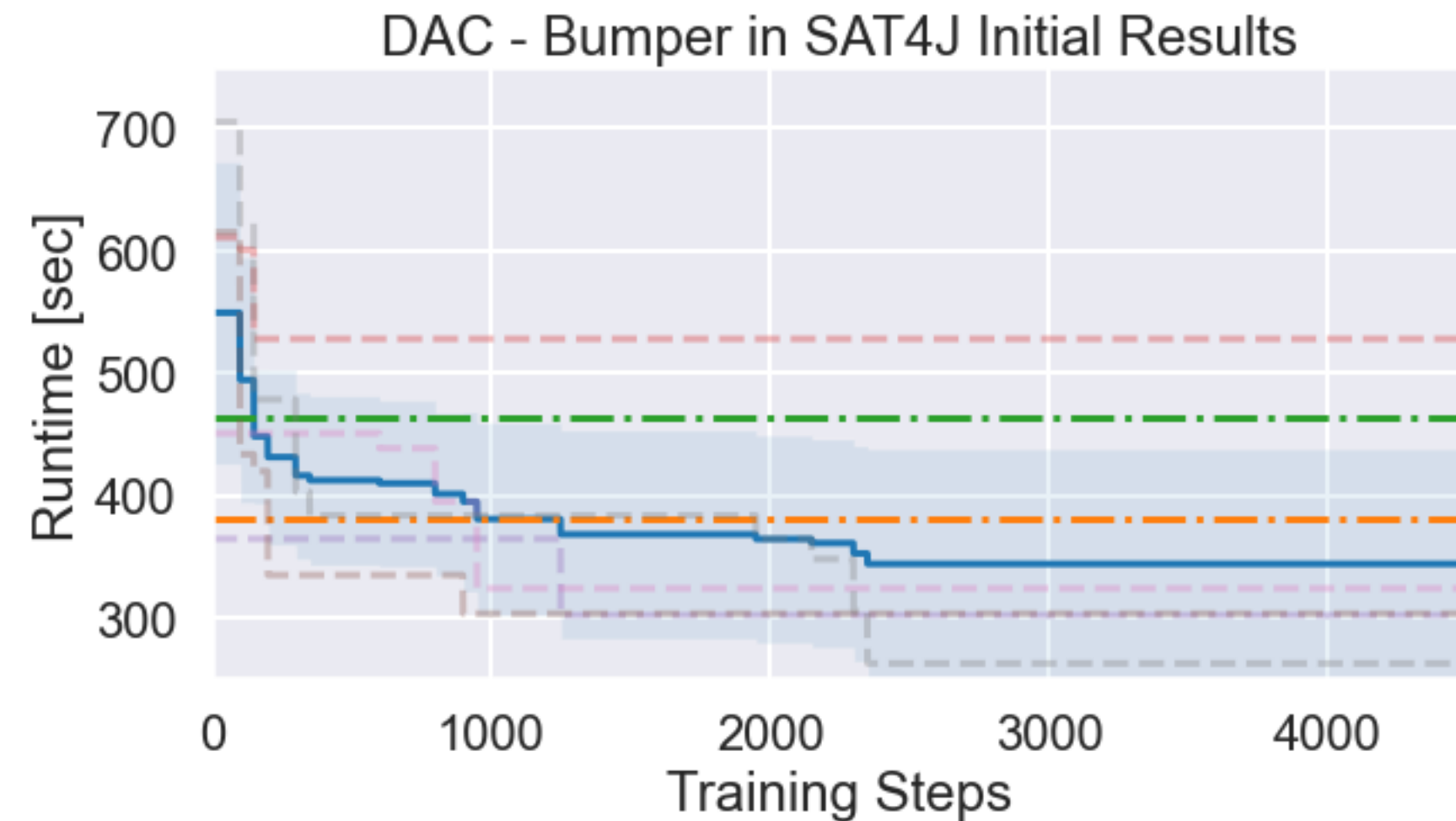
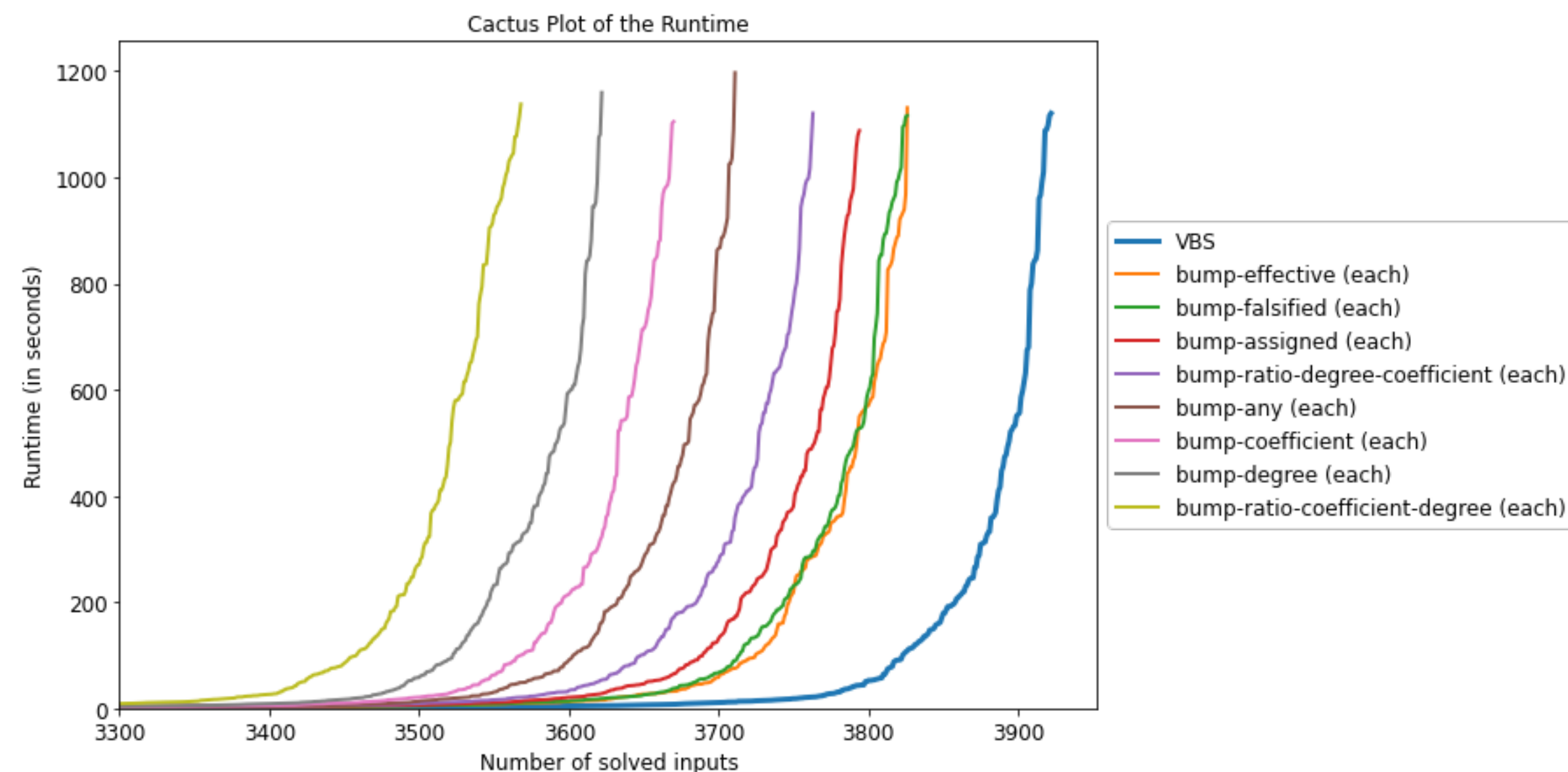


Dynamic Algorithm Configuration for Pseudo-Boolean Solving

André Biedenkapp, Frank Hutter, Daniel Le Berre, Romain Wallon

- PB solvers use a lot of strategies inherited from SAT solvers
- None of those strategies are better than the others on all benchmarks
- Virtual Best Solver (VBS) is the ideal solver applying the best strategy for each benchmark
- Algorithm Configuration (AC) aims at implementing such VBS
- Dynamic Algorithm Configuration (during runtime) aims at going further than the VBS



- DAC - μ
- DAC - σ
- Virtual Best Solver
- Single Best Static
- DAC π_0
- DAC π_1
- DAC π_2
- DAC π_3
- DAC π_4

Preliminary results

- External Heuristics Selection in Sat4j Pseudo Boolean solvers (hook method called every 1000 conflicts, socket based communication)
- DAC framework applied for choosing a Bumping strategy
- Few features: depth, #decisions, runtime
- Objective: minimizing runtime
- Limited set of benchmarks: 4 training + 4 testing from the same family PB06/SATUNSAT-SMALLINT/submitted-PB06/namasivayam/tsp Same number of variables (231) and constraints (2707)