


ConfigCrusher: White-Box Performance Analysis for Configurable Systems (Supplementary material)

Main repo



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982 commits

13 branches

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Branch: supplementary

New pull request

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This branch is 224 commits ahead of develop.

Pull request

Compare

updated readme and license

Latest commit aac970b an hour ago

src

got new data email

an hour ago

.gitattributes.backup

Used all bandwidth for git lfs

8 months ago

.gitignore

Got data for elevator

9 days ago

LICENSE.md

updated readme and license

an hour ago

README.md

updated readme and license

an hour ago

pom.xml

Started to prune regions interprocedually

5 months ago

README.md

ConfigCrusher: White-Box Performance Analysis for Configurable Systems

This repo contains all material (implementations of ConfigCrusher and state-of-the-art black-box and white-box approaches, data, scripts, results, etc.) of our novel white-box performance analysis and empirical evaluation to state-of-the-art approaches. This research shows the benefits and potential of our white-box analysis to efficiently generate performance models.

Abstract

In modern configurable systems, we are often interested in knowing how configuration options influence the performance of the system. Several approaches exist to obtain this information, but they usually require a large number of samples to make accurate predictions and some impose limitations on the systems that they can analyze. This paper proposes ConfigCrusher, a new white-box performance analysis approach for configurable systems. ConfigCrusher combines static taint analysis and dynamic analysis to identify how configuration options may influence control-flow decisions (considering control-flow and data-flow dependencies) and instruments code regions corresponding to these decisions to measure the influence of options on the regions' performance. Our evaluation using 10 real-world configurable systems shows that ConfigCrusher is more efficient at building performance models that are similar or more accurate than current state-of-the-art black-box and white-box approaches. To this end, we discuss the benefits and potential of our white-box performance analysis to outperform other approaches.

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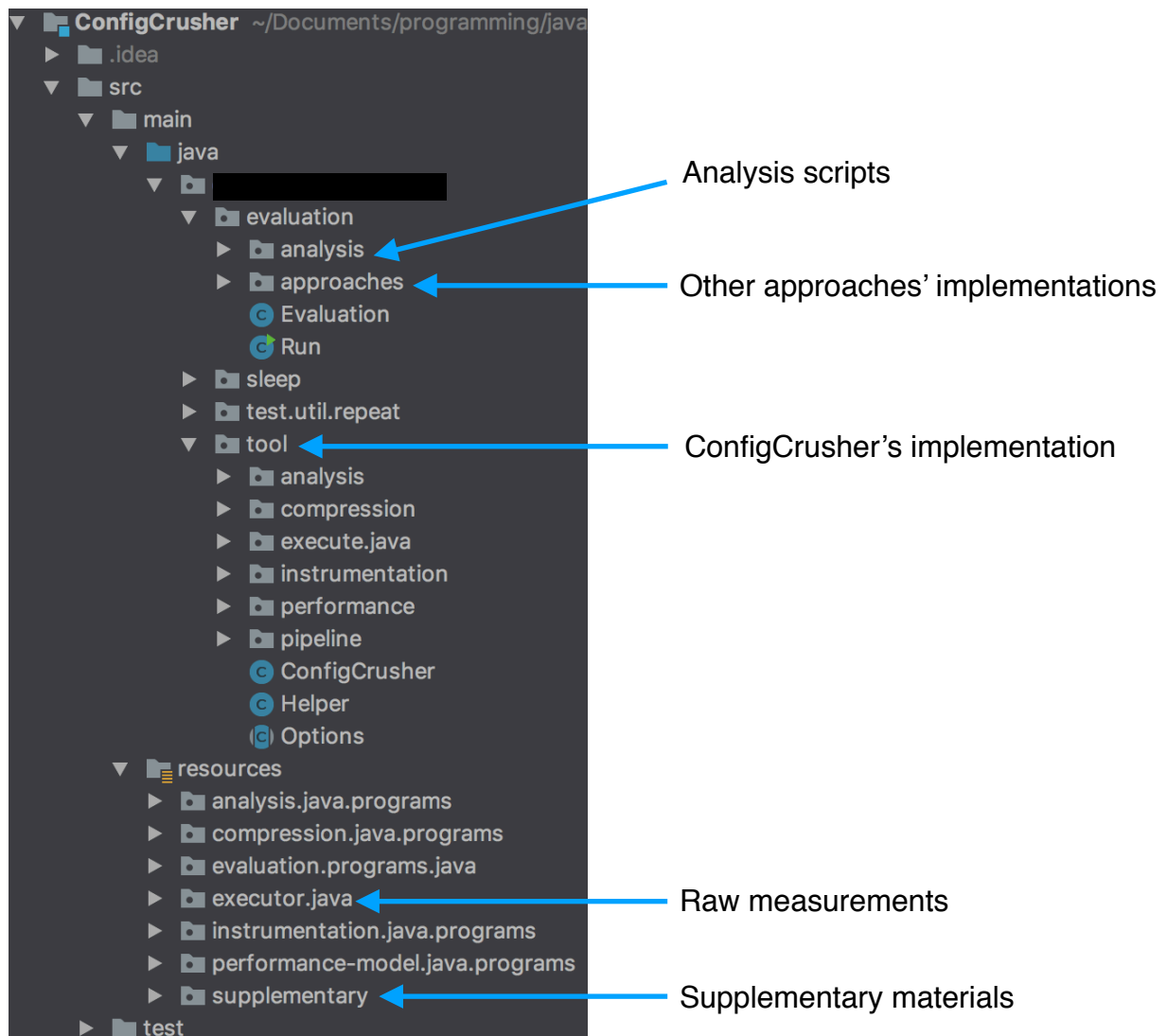
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Structure



Static taint analysis repo

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Branch: develop New pull request

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Latest commit f1528a6 12 days ago

.idea	Executed after not being able to compile	6 months ago
dotStringOutput	Analyzed elevator	12 days ago
heros	Subtree heros	6 months ago
jasmin	Subtree jasmin	6 months ago
soot-infoflow	Fixed, yet again, how static methods are handled	5 months ago
soot	Added nops before each statement since the analysis was incorrect for	5 months ago
sootOutput	Analyzed elevator	12 days ago
src	Analyzed elevator	12 days ago
.gitignore	Updated gitignore	7 months ago
pom.xml	Updated name	6 months ago

Subject systems repo

Private

<> Code

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150 commits1 branch0 releases

Branch: master New pull request

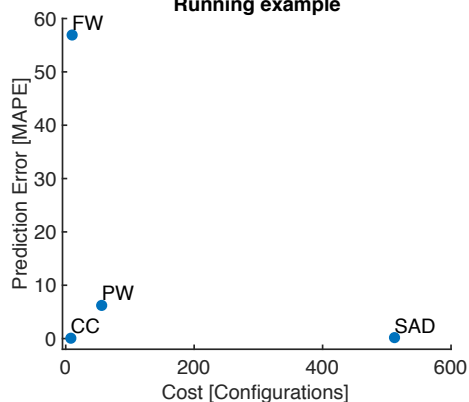
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Latest commit c882c4b a day ago

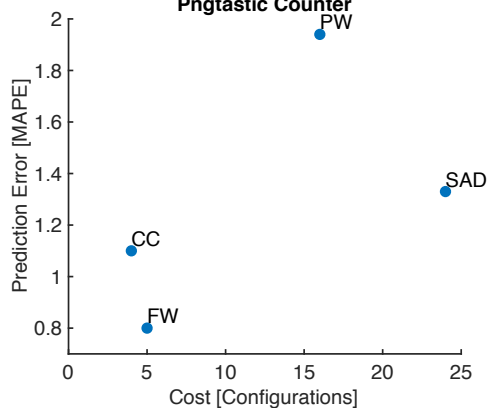
family	Added systems	5 days ago
instrumented	got email ready	a day ago
original	got email ready	a day ago
splat	Got data for email	4 days ago
.gitignore	Updated gitignore	11 days ago
performance-mapper-evaluation.iml	Added source code for java-lame	9 months ago

Cost vs prediction error

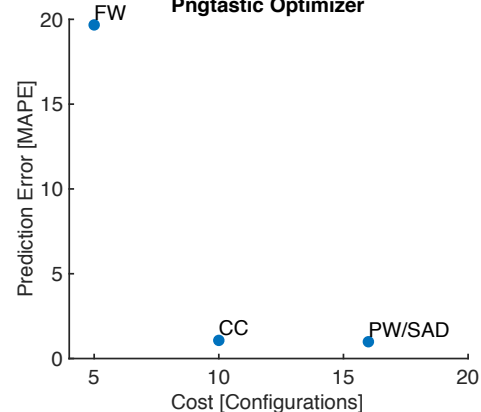
Running example



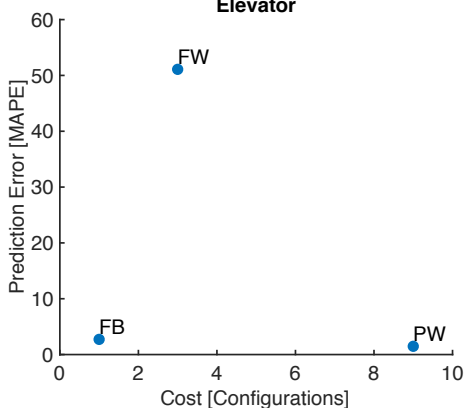
Pngtastic Counter



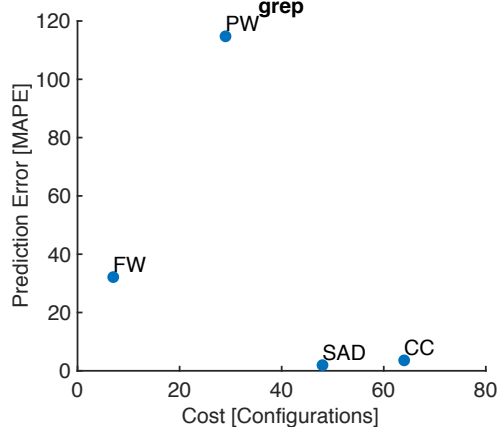
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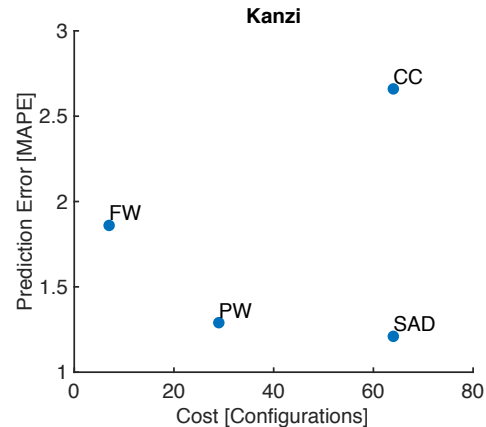
Elevator



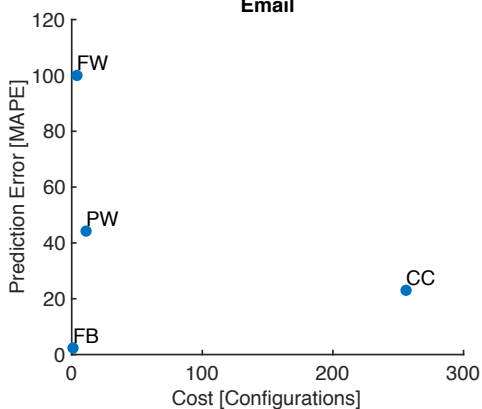
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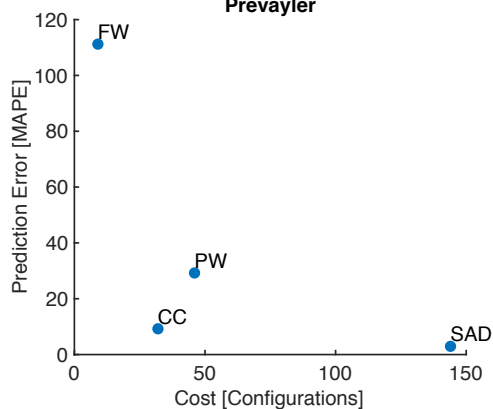
Kanzi



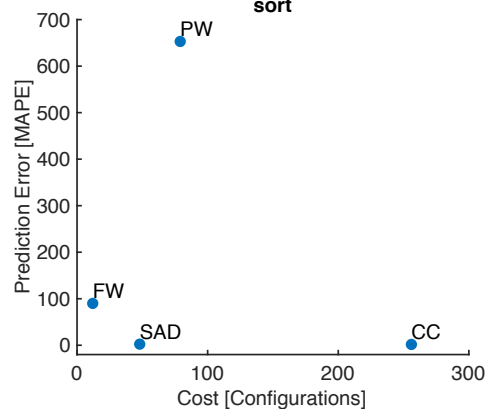
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Density Converter

