

Leafactor: Improving Energy Efficiency of Android Apps via Automatic Refactoring

Luis Cruz, Rui Abreu, Jean-Noël Rouvignac

luisacruz@fe.up.pt

rui@computer.org

jn.rouvignac@gmail.com



Writing energy efficient code is challenging



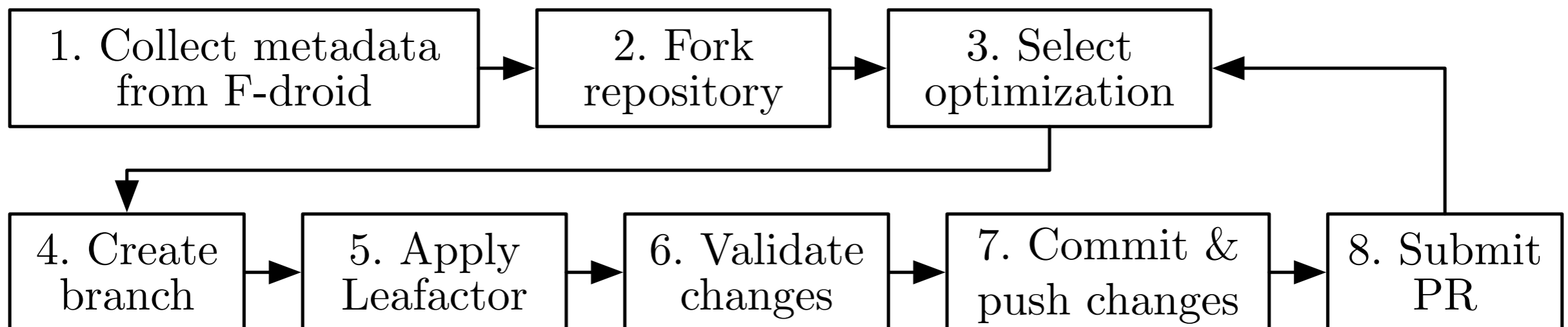
Leafactor



Refactor Android projects automatically to
improve energy efficiency

Validation

- **140 apps**, collected from F-Droid
- 15308 Java files and 15103 XML files



Results



<https://goo.gl/wf0hso>

- 222 refactorings in total
- 59 Pull Requests (**15 merged**)

Table 1: Summary of refactoring results

Optimization Rule	W	R	DA	VH	OLP
Total Refactors	1	58	0	7	156
Affected Projects	1	23	0	5	30
Affected Projects (%)	1	16	0	4	21

Wakelock (W), Recycle (R), DrawAllocation (DA), ViewHolder (VH), ObsoleteLayoutParam (OLP)

<https://youtu.be/K2frfh4tR1o>

Leafactor: Improving Energy Efficiency of Android Apps via Automatic Refactoring

Luis Cruz, Rui Abreu, Jean-Noël Rouvignac



Tooldemo Paper



Experimental data