ParaPhrase-Enlarged Budapest HU

Eötvös Loránd University
ELTE-Soft Kft.

Refactoring User Interfaces

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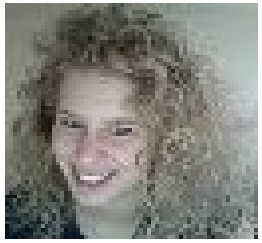
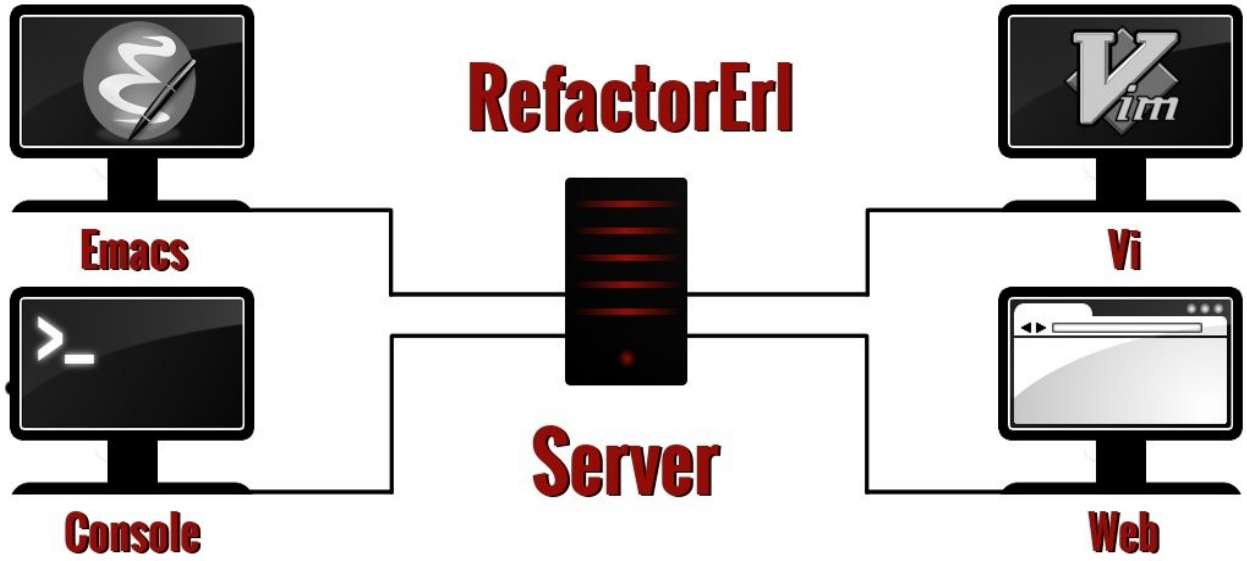


Viktória Fördős

Melinda Tóth

Our role in the project

- Erlang
- Program shaping
- Discover pattern candidates
- Transform into patterns
- Support from RefactorErl



- Static program analysis and transformation tool
- Developed since 2006
- Financed by Ericsson
- Integration with ParaPhrase refactoring tools

Activities

T2.1: High-Level Parallel Patterns

T2.4: Static Analyses to enable Pattern Discovery

T4.1: Refactoring Transformation System

T4.2: Refactoring User Interface

T4.3: Pattern Candidate Refactoring Rules

T6.4: Experimental evaluation

Static Analyses to enable Pattern Discovery

- prototype
- farm, pipe
  - lists:map, list comprehensions
  - composition, call chain
  - functions with farm/pipe-like structure

Refactoring User Interface

present possible pattern candidates to the programmer on demand

performance information for alternative heterogeneous platforms

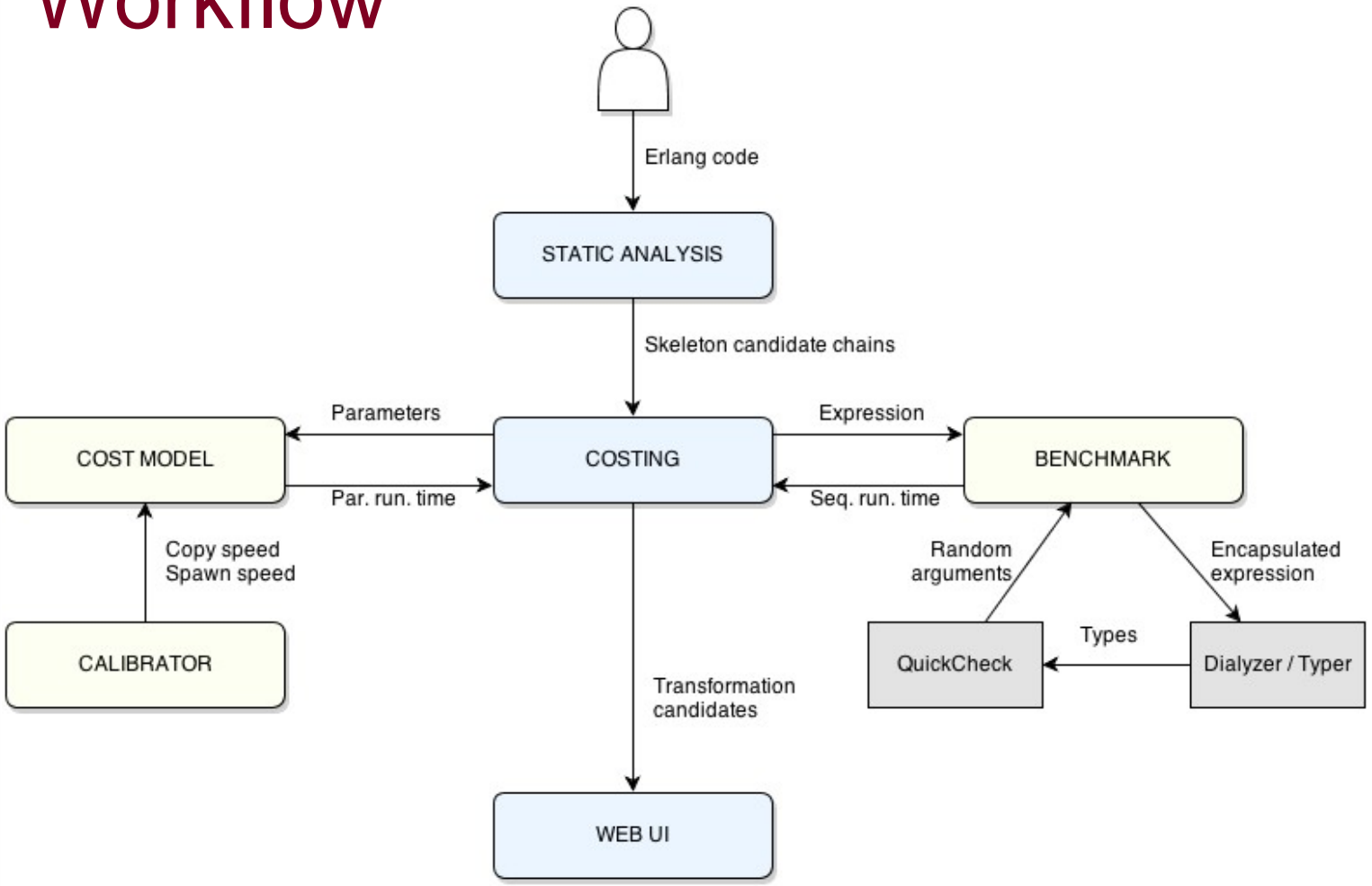
avoiding unnecessary details
highlight key decisions

heuristics

Plans for near future

- 1st version with limitations
- D4.3 due in September 2013
- Refined deliverable later
- More advanced analyses are required

Workflow


Erlang code
STATIC ANALYSIS
Skeleton candidate chains
Parameters
Par. run. time
Expression
Seq. run. time
COST MODEL
COSTING
BENCHMARK
Copy speed
Spawn speed
CALIBRATOR
Transformation candidates
Random arguments
Encapsulated expression
Types
QuickCheck
Dialyzer / Typer
WEB UI

Benchmarking

- Dynamic compilation and execution of exprs
- Free variables
- Portable funs
- Test data generation (QuickCheck)
- Type information (Typer)

Web UI

- Google visualization toolkit
- Web service and persistence
- Collaborative work supported
- CSV export, any other format?
- Integration with ParaPhrase refactoring tools

Known problems, limitations

- Analyses will be improved
- Benchmarking strategy to be implemented
- Heuristics will be introduced
- Typing problems
- GPU benchmarks to be added
- UI improvements

Summary

- Refactoring User Interface (T4.2)
- Pattern candidates
- Benchmarking plus cost model
- D4.3 in Sept 2013, refined later
- Home page

  http://paraphrase-enlarged.elte.hu/