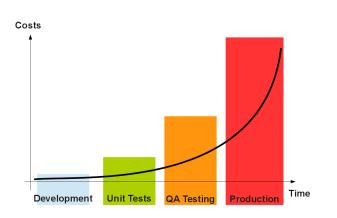


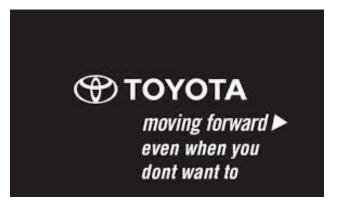
Idriss Riouak

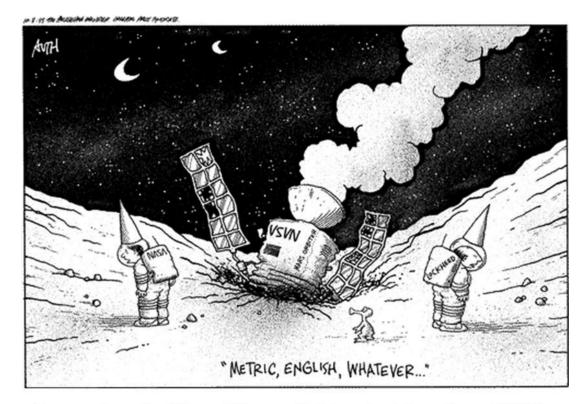




- Idriss Riouak, 28 Years
- BCs @ Parma University
- MSc @ University of Udine (Automatic Software Verification and Formal Methods)
- 3rd Year WASP PhD Student
 @ Lund University with focus
 on Program Analysis







Remember the Mars Climate Orbiter incident from 1999?



- My research interests are:
 - Dataflow Analysis
 - On-demand evaluation
 - Compiler construction
 - Reference Attribute Grammars



Write code

Commit & Push

Work on something else

Notification with static errors.

Good 👍

Write code

Errors in your IDE

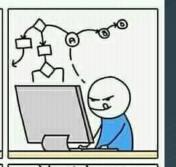
Commit & Push

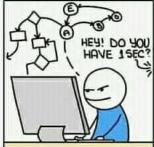
Work on something else

DON'T DISTURB A PROGRAMMER WHEN HE IS TRYING TO FOCUS.

FOCUS













Yet another static analyser?

- Clang static analyser
- Spotbugs
- Findbugs
- Éclair
- Astreè

```
1 void foo(boolean b){
    String x = null;
     if (b) x = "Hello world!";
                                                                        MethodDecl
    x.toString();
                                                             nullable={Ø}
                                                                                             ParamDecl
5 }
                                                                                             boolean b
                                                                                                                    dereferencing
                                                                                                                    (left of a Dot)
                                                                                                                  a nullable variable
                                                      DeclStmt
                                                                          IfStmt
                                                    String x = null
                                          nullable = { x }
                                                                                                       MethodAccess
                                                    VarAccess
                                                                                           VarAccess
                                                                        AssignStmt
                                                                                                        toString()
                                           nullable = { x }
                                                                                       nullable = { x }
                                                                                                        | nullable = \{ \mathbf{x} \}
                                                                 VarAccess
                                                                                 Literal
                                                                                "Hello world"
                                                         nullable={Ø}
                                                                               nullable = { x }
                                                                                                              AST built by the parser
                                                                                                    ASTNode
                                                                                                             CFG built on top of the AST
                                                                                                              Dataflow facts, built on top of
         1 void foo(boolean b){
                String x = null;
                if (b) x = "Hello world!";
                if (x != null) x.toString();
         5 }
```



- IntraJ: Static Analyzer for Java 8
- Source code control-flow analysis
- No need to generate bytecode

Legend

- On-demand evaluation
- Easy IDE integration
- Quick Fixes and bug **Explanation**