

Introduction to Functional Programming with Haskell

Pre-master's programme Summer School
at Universiteit van Amsterdam, August 2016

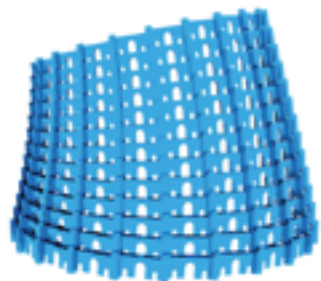
Ralf Lämmel

University of Koblenz-Landau

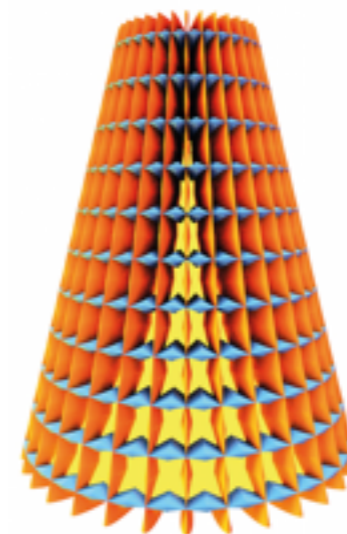
Faculty of Computer Science

Software Languages Team

<http://www.softlang.org/>



softlang



101
companies

Teaching staff

- Programme director:
 - Dr. Clemens Grelck, Universiteit van Amsterdam
- Lecturer:
 - Prof. Dr. Ralf Lämmel, University of Koblenz-Landau
- Student assistant:
 - James Joel Bartholomew, Universiteit van Amsterdam

Links

- [General Course Info](#) [.html] (at Uva)
- [Course Wiki](#) [.html] (content provided by lecturer)
- [Course Script](#) [.html] (a sequential version of Wiki)
- [Course Assignments](#) (provided day by day)
- [Course Slides](#) [.pdf] (these very slides)
- Full <https://www.haskell.org/platform/> (needed for course)
- [Lecturer contact](#) [.html] (Email, twitter, etc.)
- Free online books on Haskell:
 - <http://book.realworldhaskell.org/>
 - <http://learnyouahaskell.com/>



Schedule

- Monday
 - 14:00-15:00 Lecture
 - 15:00-15:30 Lab
 - 15:30-16:00 Break
 - 16:00-17:30 Lecture
- Tuesday-Thursday
 - 09:00-10:30 Lecture
 - 10:30-11:00 Break
 - 11:00-12:30 Lab
 - 12:30-13:30 Lunch
 - 13:30-15:00 Lecture
 - 15:30-16:00 Break
 - 16:00-17:00 Lab
- Friday
 - 09:00-10:30 Lecture
 - 10:30-11:00 Break
 - 11:00-12:30 Lab
 - 12:30-13:00 Lunch
 - 13:00-14:00 Lab

Barbecue on
Thursday

Assumptions

- There are students with different background.
 - All students manage a basic level by the end.
 - Some students may have time for advanced stuff.
- Let's have fun anyway.
- Let's make this an interactive experience.

Assignments

- There are multiple assignments per day:
 - *A simple* one to get started
 - *A modest* one needed to pass (not on day 1)
 - *A tough* one to keep people off the street (not on day 1)

Teaching objective

- Lay foundations of functional programming
 - Functions, recursion, lists, higher-order functions, ...
- Introduce to programming and language theory
 - Monoids, functors, property-based testing, ...
- Introduce to different programming domains
 - Parsing, pretty printing, transformation, ...

Friendly rules of the game

- Participate in lectures and labs.
 - Contact Programme Director in case of problems.
- Submit your solutions by the end of last lab per day.
- The “tough” solutions can be submitted next day.
- You need to succeed on 3 out of 4 “modest” solutions.

1st lab — getting you going

- Make sure you have the **“full”** and latest **Haskell platform** installed.
 - The “minimal” platform would cause extra issues.
 - You would need to run `cabal / stack install ...`
- Create a file **Main.hs** somewhere.
- Enter **main = print “hello** into file.
- Run the file.
 - Either click the file or use command line as in **ghci Main.hs**.
 - Possibly enter **main** at the prompt.



GHC 8!