

# Hardware Design in the 21st Century with the Object Oriented and Functional Language Chisel Program

Martin Schoeberl and Schuyler Eldridge

Technical University of Denmark, IBM T. J. Watson Research Center

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# Course Organization

- ▶ Six sessions, one day
  - ▶ 09:00 - 13:00 Tutorial Sessions
  - ▶ 13:00 - 14:00 Lunch Break
  - ▶ 14:00 - 18:00 Tutorial Sessions
- ▶ Assume there are coffee breaks
- ▶ Lectures and hands-on lab
- ▶
- ▶ Laptop with Ubuntu and Quartus
- ▶ We have some DE2-115 FPGA boards

# Program

- ▶ Session 1
  - ▶ Lecture: Chisel overview
  - ▶ Lab: Check installation and get Hello World compiled
- ▶ Session 2
  - ▶ Lecture: Chisel basic operations
  - ▶ Lab: Change the blinking LED + examples from the Chisel tutorial
- ▶ Session 3
  - ▶ Lecture: FIRRTL and Chisel/FIRRTL Libraries 1
- ▶ Session 4
  - ▶ Lecture: A little bit of Scala and Chisel background
  - ▶ Lab: Explore ALU example + a design from scratch
- ▶ Session 5
  - ▶ Lecture: FIRRTL and Chisel/FIRRTL Libraries 2
  - ▶ Lab: A simple FIRRTL transformation
- ▶ Session 6
  - ▶ Lecture: Customized circuit generation
  - ▶ Lab: UART