TDA383/DIT390

Concurrent programming: practical information

Carlo A. Furia

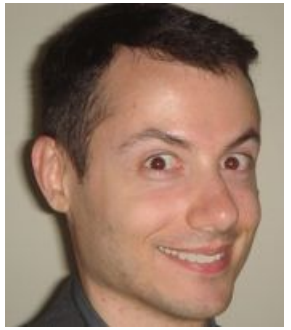
One website to rule them all

Make sure to check out regularly the course website:

http://www.cse.chalmers.se/edu/year/2016/course/TDA383_LP3/

It is the primary source of all information about the course.

The teaching team



Lecturer/examiner: Carlo A. Furia

Teaching assistants (TAs):

- Andreas Lööw
- Ann Lilliestrröm
- Mauricio Chimento
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Student representatives

- Patrick Engström, CTH, pateng@student.chalmers.se
- Gustav Holst, CTH, holstg@student.chalmers.se
- Tobias Karlsson, CTH, tobikarl@student.chalmers.se
- Miriam Mchome, CTH, mchome@student.chalmers.se
- Carlos Yechouh, CTH, carlosy@student.chalmers.se
- GU student representatives will be announced later

Main goals

- Understanding the problems common to concurrent and parallel systems
- Demonstrating techniques and patterns to write correct and efficient concurrent programs
- Applying the techniques and patterns in modern programming languages

Main topics

- Introduction to concurrency
- Java threads
- Semaphores and monitors
- Synchronization problems
- Erlang and functional programming
- Erlang message-passing
- Parallelizing computations
- Formal models and verification

Lectures

Make sure to check the up-to-date schedule on the website.

1	16 January 2017	Introduction to concurrent programming
2	16 January 2017	Races, locks, and semaphores
3	18 January 2017	Models of concurrency & synchronization algorithms
4	23 January 2017	Synchronization problems with semaphores
5	25 January 2017	Monitors
	30 January 2017	(no lecture)
6	1 February 2017	Synchronization problems with monitors
7	6 February 2017	Introduction to functional programming in Erlang
8	6 February 2017	Message-passing concurrency in Erlang
9	13 February 2017	Synchronization problems with message passing
10	15 February 2017	Parallelizing computations
11	20 February 2017	Models and languages of concurrent computation
12	22 February 2017	Verification of concurrent programs
13	27 February 2017	Guest lecture: Niklas Gustavsson, Spotify
14	1 March 2017	Guest lecture: Cons T Åhs, Cisco Systems

Labs

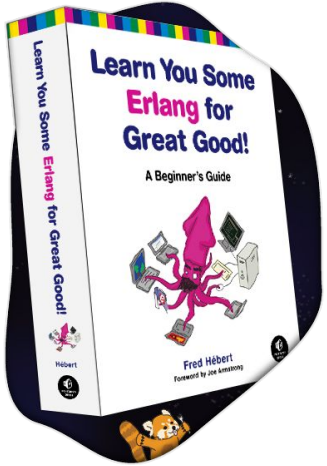
1. Trainspotting (Java) with demo!
2. Trainmonitoring (Java)
3. CCHAT (Erlang) with demo!
4. Workers (Erlang)

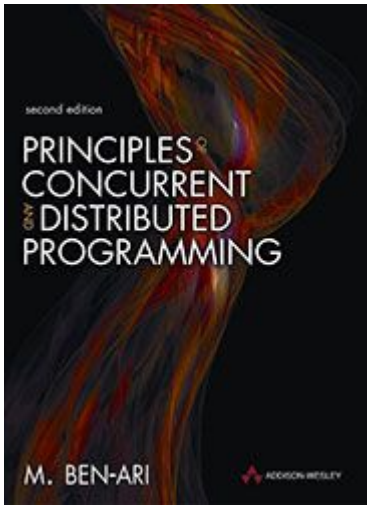
Descriptions of the labs, deadlines, and rules are on the website:

- Register your group (2 persons) using Fire
- Make sure to check the TA supervision schedule

Notes and reading material

- Slides of each lecture: on the website
- Ben-Ari: *Principles of concurrent and distributed programming*, 2nd edition
- Hébert: *Learn you some Erlang for great good* (freely available online)
- More references on the website





Exam

- Open-book (2 books maximum), some notes allowed (4 sheets of paper maximum)
- All topics in the lectures can be examined (except the guest lectures)
- See exams of previous years for examples

- Exam dates: see TimeEdit
- Exam grading: see course website

Computing resources

- Install recent versions of Java and Erlang/OTP on your computers
- Try out the examples presented in class (some complete examples will be available on the website together with each lecture)
- Labs 1 and 2 (Trainspotting & Trainmonitoring) require a simulator, which runs in the laboratory computers
- The course website helps you set this up to work on your own computer as well