

# Microservice Programming

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## 1: Introduction

Fabrizio Montesi

<fmontesi@imada.sdu.dk>



# Course Participants

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- Who are you?
- What do you like about Computer Science?
- What projects did you participate in? (Software, reports, ...)
- What would you like to do in the future?
- Do you enjoy more theory or practice? Examples?
- Why did you register for this course?

# Topic

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- Microservices: fine-grained distributed systems.
- Focus is on:
  - Productivity: save time.
  - Integration: interoperate with existing software.
  - Correctness: no bugs.
  - Efficiency: avoid unnecessary computation.

# Course Structure

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- Frontal Lectures with Theory and Practice.
  - Live Programming.
  - Group Programming.
- Reading Group (seminars). Once or twice a week.
- Exercises.

# Course Material

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- Slides.
- Research papers.
- Online documentation: <http://www.jolie-lang.org>
- Selected chapters from this book (find it in the SDU library):  
Web Services Foundations. *Athman Bouguettaya, Quan Z. Sheng, Florian Daniel (Eds.)*. Springer 2014.  
Link:  
<http://www.springer.com/computer/database+management+%26+information+retrieval/book/978-1-4614-7517-0>

# Course Material

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- The course material is not set in stone.
- You can change the direction of which papers we analyse.

# Expected Learning Outcomes

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- Design and integrate communication protocols and software.
- Reason about the correctness of integrated mobile and distributed systems.
- Develop mobile and distributed software that can scale with respect to different technologies.
- Develop software that can adapt to contextual changes (e.g., mobility).

# The General Objective

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- Understand and reason about bleeding-edge techniques for distributed programming.
- The basis for (in our topics):
  - becoming a researcher;
  - becoming a technology developer;
  - growing your independency as a decision maker.



# Reading Group and Attendance

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- Every week we will select and assign papers to a different “reader” (one of you).
- The reader has to read the paper and prepare a presentation.
- In the following week, the reader presents the paper (seminar).
- During and after the presentation, we discuss the paper.
- Everybody has to read the paper!
- Attendance is important, because of these seminars.
- I will be the first reader, to give an example.

# Evaluation

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- Final report/project. It can be:
  - A software project (with report).
  - A survey article of some existing papers and/or technologies.
  - A report on theoretical research.
- The report must include related work and techniques, much of which we will see during the class presentations. So class participation (attendance and engagement in the discussion of papers) will be important to write a good final report.