

# DISTRIBUTED SYSTEMS

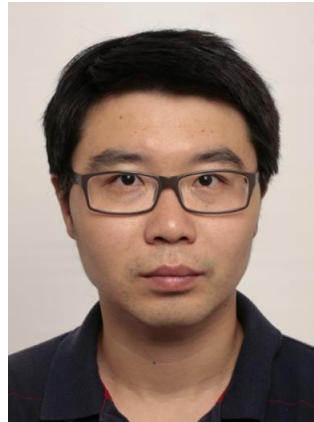
Course overview

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# Instructors



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Xiang Su



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Helsinki, Finland, 2019.



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# Instructors

- There will be guest lectures as well

# Course overview (from course page)

- Basic (Lectures 1-5)
  - Coordination of parallel processing, and mutual exclusion
  - Distributed decision making
  - Mutual communication protocols
- Intermediate (Lectures 5-10)
  - Fault tolerance
  - Replica management
  - Data consistency models and management
- Advanced (Lectures 10-15)
  - Distributed system deployments
  - Dynamic scalability of systems

# Course overview

- Theory
  - Concepts and principles (in lectures)
- Practical work
  - Exercises (in the lab) – **Dianlei Xu**
- Discussion on emerging topics
  - Opportunistic computing/communications
  - Social-aware technologies (5G, Internet of Things, etc)

# Course schedule

- Lecture meetings
  - Tuesday 12-14 in Exactum, C222
  - Thursday 10-12 in Exactum, D122
- Weekly exercise sessions
  - Group 1: Thursday 16-18, Exactum, C222
  - Group 2: Friday 14-16, Exactum, C123
- Exam (tentative)
  - Wednesday 19.12 at 9.00(-12) in Exactum B123

# Course grading

- Students collect course points during the course. These points are then converted to a grade
  - Tasks/exercises will be assigned on weekly basis
  - Tasks are delivered online
  - Exercises are done in the lab, but they are also uploaded to the system, so if you cannot attend, download the exercises and send them (one extra day after the lab is giving to send the exercises to the teaching assistant)

# Course grading

- Tasks/exercises will be assigned on weekly basis
  - Points of each exercise/task will be announced with the task
- Grade                      Points
  - 5                              90-100
  - 4                              80-89
  - 3                              70-79
  - 2                              60-69
  - 1                              50-59
  - 0                              49 and below
- The rest of the points are covered in the exam. For passing the course, student **MUST** gain at least half of the exam points. (Total 40)



# Course grading (summary)

- Exam **40pts**
  - You need to score half points to pass (MANDATORY)
- Practical work **60pts**
  - 3 tasks (45pts)
    - Within each task is described grading instructions based on implementations of functions and standard answers
  - Quiz/exercises (15pts)

# Course book

- **Van Steen, Maarten , Tanenbaum, Andrew.** Distributed Systems: Principles and Paradigms (Third edition). Published by Maarten van Steen, 2017. [Previous versions published by Pearson]  
Free download from <https://www.distributed-systems.net/>
- Other useful course books:
  - **Ghosh, Sukumar.** Distributed systems: an algorithmic approach (second edition). Chapman&Hall/CRC, 2015. Author's own course material, Spring 2015:  
<http://homepage.divms.uiowa.edu/~ghosh/16615.html>
  - **Coulouris, George, Dollimore, Jean, Kindberg, Tim:** Distributed Systems: Concepts and Design [5th Edition], Addison-Wesley 2012

# Expected knowledge, background

- Programming skills
- Basics of Networking and Data Communication
  - Layers, protocols, ...
- Basics of Operating systems
  - System calls, APIs, ...
- Concurrency and mutual exclusion in single computer
  - Critical sections, shared memory, ...

# Discussions!

- The lecture sessions will be based on discussions
- Everybody participates
- Step 1: Pair discussion for two minutes,
- Step 2: Collect the points together



# QUESTIONS

Helsinki, Finland, 2019.



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