Discrete Event Simulation

IN2045

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Teaching—I8 Overview

- Lectures

SS:

  - Introduction to Computer Networking and Distributed Systems (IN0010)
  - Peer-to-Peer-Systems and Security (IN2194)
  - **Discrete Event Simulation (IN2045)**

WS:

  - Master Course Computer Networks (IN2097)
  - Network Security (IN2101)

- Seminars
  - Seminar – Network Architectures and Services: Network Hacking (IN0013)
  - Advanced Seminar – Innovative Internet Technologies and Mobile Communications (IN8901)
  - Advanced Seminar – Future Internet (IN8901)
  - Advanced Seminar – Sensor Networks(IN0014), with Prof. Baumgarten
- Lab Courses
  - Bachelor Practical Course – Internet Lab (IN0012)
  - Master Practical Course – Computer Networks (IN2106)

Course organization
IN2045 Discrete Event Simulation

- Lecture: Wednesday, 12:35h s.t. – 14:05h
  - Weekly
  - Was shifted to avoid collisions with other lectures
- Tutorial (Übung): Tuesday, 11:00h s.t. – 12h
  - Weekly
  - As an exception, next week (Tue 26/10/2010), there will be a lecture instead of the tutorial
  - Tutorial starts Tue 02/11/2010
  - Do you have to participate?
    See upcoming slides on grading…

Course organization
IN2045 Discrete Event Simulation

- Students are requested to subscribe using a Web form at www.net.in.tum.de ⇨ Lehre ⇨ Vorlesungen ⇨ …
  - http://www.net.in.tum.de/de/lehre/ws1011/vorlesungen/
  - Subscription is not compulsory
  - Subscription does not come with any obligations
  - Will be used for sending up-to-date information (e.g., room changes)
  - Email list for subscribers of course
  - **WARNING: This is unrelated to a subscription in TUMonline!**
- Questions and Answers / Office hours
  - Dipl.-Inform. Alexander Klein, klein@net.in.tum.de, 03.05.061
    Office hours: Mon 13–14
  - Dr. Nils Kammenhuber, kammenhuber@net.in.tum.de, 03.05.043
    Office hours: usually Thu, Fri 14–15, but check via e-mail first
  - Prof. Dr. Georg Carle, carle@net.in.tum.de
    Office hours: Upon appointment (typically Mon 16–17)
- Course Material
  - Slides are available online.
  - Most slides are from last semester; will be updated during the course.

Grading

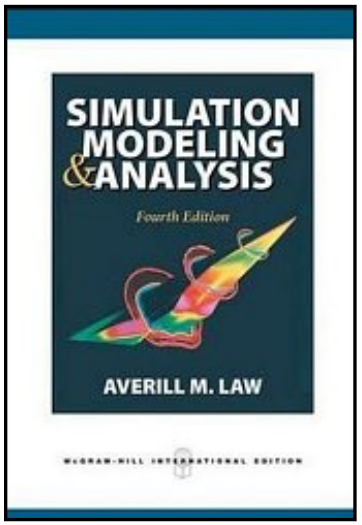
- Course is 4 ECTS
  - 2 SWS lectures
  - 1 SWS exercises
- Exercises
  - Prepare for the oral examination
  - Successfully participating at exercises gives a bonus of 0.3 on the overall grade.
- Our concept for grading
  - Final examinations will be oral (mündliche Prüfung, ~20–25 minutes) and give an individual grade
  - You must pass the oral exam for being successful in the course (i.e., 4.3 and 0.3 bonus ≠ 4.0)
- Subscription in TUMonline
  - Warning: Subscription on www.net.in.tum.de does not replace subscription via TUMonline!
  - The usual TUMonline deadlines apply.

Questions

- Who studies what?
  - Diploma degree?
  - Master in Informatics?
  - Master in Information Systems [Wirtschaftsinformatik]?
  - Other Master courses?
  - Bachelor in Informatics?
  - Exchange students from other universities?
- Which previous relevant courses?
  - Rechnernetze/Computer networks?
  - Masterkurs Rechnernetze/Master course computer networks?
  - Grundlagen Betriebssysteme/Operating Systems?
  - Other courses, e.g., Simulation and Modelling?
- Which language is preferred?
  - Any non-native speakers of German who would prefer English?
  - (Ansonsten: Folien auf Englisch, Vorlesung auf Deutsch)

Material

- Book:
  Simulation Modeling and Analysis
  Averill M. Law
  4th edition
  McGraw-Hill, 2007



- The book contains additional background information, but:
  - Lecture content $\not\subseteq$ book's content
  - Book's content $\not\subseteq$ lecture content
- Lecture notes (these should be seen as complementary):
  - Parallel and Distributed Simulation Systems
    Richard Fujimoto
    College of Computing, Georgia Institute of Technology
  - Modellgestützte Analyse und Optimierung
    Peter Buchholz, Informatik IV, TU Dortmund
  - Simulation of computer systems and computer networks:
    A process-oriented approach
    J. B. Sinclair, Rice University
  - Einführung in die Simulationstechnik
    Frank Wagner, Joachim Warschat, Universität Stuttgart

Course outline

- Chapter 0 – Introduction and Motivation:
  - What is simulation?
  - When and why to do simulation; alternatives to simulation
  - Typical workflow that involves simulation
  - We'll delve into that right after this overview

At the end of today's lecture, we'll have a brief overview on the other remaining chapters of the term:

- Chapter 1 – Internals of a simulator
- Chapter 2 – Statistics
- Chapter 3 – Random numbers
- Chapter 4 – Evaluation of simulation runs
- Chapter 5 – Experiment planning
- Chapter 6 – Parallel/distributed simulation
- Chapter 7 – Advanced topics (e.g., mobility models)
- Matlab tutorial, OPNet tutorial