Switching and Routing in Parallel and Distributed Systems (ESE 536/CSE 626)

Fall 2017

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- **Course description. This course covers various switching and routing issues in parallel and distributed systems. Topics include message switching techniques, design of interconnection networks, permutation, multicast and all-to-all routing in various networks, nonblocking and rearrangeable capability analysis and performance modeling.**
- **Prerequisites. ESE 503 and 545 or CSE 502 and 547, or permission of the instructor.**
- **Meeting.**
  - **Time: Tuesday and Thursday 2:30PM - 3:50PM**
  - **Place: SOCBEHAV SCI S228**
- **Instructor**
  - **Name: Yuanyuan Yang, Professor**
  - **Office: Room 205, Light Engineering Building**
  - **Phone: 632-8474**
  - **Email: yuanyuan.yang@stonybrook.edu**
  - **Office Hours: Thursday 12:30PM - 2:30PM.**
- **Learning objectives. To become familiar with the state of the art on various communication issues in parallel and distributed computing systems. At the end of the course, students should be able to**
  - **Explain the details of the switching techniques, designs of interconnection networks, unicast and collective communication routing algorithms, and performance analytical models that have been discussed in class.**
  - **Compare and contrast between different approaches and determine which approach is most suitable for particular applications.**

    - **Perhaps perform original research on a topic covered in the course.**
- **Textbook. We will cover selected materials in the following book**
    - **Interconnection Networks: An Engineering Approach, J. Duato, S. Yalamanchili, and L.M. Ni, Morgan Kaufmann Publishers, 2002. (Recommended but not required).**
    - **In addition, we will discuss a number of articles from recent issues of journals and conference proceedings. Copies of these papers and additional handouts will be made available in class.**
- **Grading. Since this is a topic course, there will be a minimal number of assignments and exams. One third of the overall grade will be determined by the performance on a few homework problem sets. Another third will be determined by the grade of the final exam. For the final third of the grade, each student should give an in-class presentation on a research paper assigned by the instructor.**

Accommodations for Students with Special Needs. If you are entitled to extra accommodation for any reason (such as a physical or mental disability), it is your responsibility to discuss this with the instructor at the beginning of the course.