

# ECE 1718S Phase 2 Reading List and Leading Discussion

## 1 Tentative Reading List and Schedule

### 1. Multithreaded Architectures (March 19)

- **Chip Multiprocessors:** "Exploring the design space of future CMPs", J. Huh, D. Burger and S. Keckler, PACT 2001.
- **Simultaneous Multithreading (a.k.a. Hypertreading):** "Exploiting Choice: Instruction Fetch and Issue on an Implementable Simultaneous Multithreading Processor", Dean M. Tullsen, Susan J. Eggers, Joel S. Emer, Henry M. Levy, Jack L. Lo and Rebecca L. Stamm, ISCA 1996.

### 2. Using Threads (March 26)

- **Thread Level Speculation:** "A Scalable Approach to Thread-Level Speculation", J. Gregory Steffan, Christopher B. Colohan, Antonia Zhai, and Todd C. Mowry, ISCA 2000.
- **Pre-Execution:** "Tolerating Memory Latency through Software-Controlled Pre-Execution in Simultaneous Multithreading Processors", C.K. Luk, ISCA 2001.

### 3. Domain-Specific Processors (April 2)

- **Network Processors:** "Characterizing processor architectures for programmable network interfaces", Patrick Crowley and Marc E. Fluczynski and Jean-Loup Baer and Brian N. Bershad, Supercomputing 2000.
- **Cryptographic Processors:** "CryptoManiac: A Fast Flexible Architecture for Secure Communication", Lisa Wu, Chris Weaver, and Todd Austin, ISCA 2001.

### 4. Reconfigurable Computing (April 9)

- **Streaming:** "PipeRench: A Coprocessor for Streaming multimedia Acceleration", Seth Goldstein, Herman Schmit, Matthew Moe, Mihai Budiu, Srihari Cadambi, R. Reed Taylor, and Ronald Laufer, ISCA 1999.
- **Hybrid:** "CHIMAERA: a high-performance architecture with a tightly-coupled reconfigurable functional unit", Zhi Alex Ye, Andreas Moshovos, Scott Hauck, and Prithviraj Banerjee, ISCA 2000.

### 5. Future Possibilities (April 16)

- **Grid Processors:** "A design space evaluation of grid processor architectures", R. Nagarajan, K. Sankaralingam, D. Burger and S. Keckler, MICRO 2001.
- **Nanotechnology:** "NanoFabrics: Spatial Computing Using Molecular Electronics", Seth Goldstein and Mihai Budiu, ISCA 2001.

## 2 Leading Discussion

You will each be leading the discussion for a paper through a short presentation in groups of two (there are 18 in the class, so 9 groups of 2). This does not have to be the same group as for your project, and you will be graded individually (not as a group). Each group member should deliver about 15 minutes of presentation (using roughly 15 slides), and also lead the discussion. The group members may divide the content of the paper however they see fit; you may consider presenting some background material (possibly from publications cited in the paper to be presented). For example, one member may present motivation, background material, and the basic idea, while the other presents some design details, evaluation, and conclusions.

### 2.1 Hints

You may use slides obtained from the internet (as long as you can transform them into a coherent presentation appropriate for the course). You can also 'screen-capture' the paper to include result graphs, but it is often better to 'redraw' any diagrams. Feel free to ask the instructor for advice, or to get advance feedback on your presentation slides and material before you present.

### 2.2 Grading

The 15% of your final grade allocated to "class participation" is divided into 10% for the presentation, and 5% for attendance and participation during phase2 of the course. The presentation will be graded (individually, for both your slides and speaking) on clarity, enthusiasm, summarization, and understanding. Powerpoint presentations are encouraged, although students may make the case for other presentation media. Electronic presentations should be emailed to the instructor by midnight before the class.