740: Computer Architecture
First Assignments to Complete

Prof. Onur Mutlu
Carnegie Mellon University
Fall 2013
Assignments Before Semester Really Starts

- Background brush-up assignments (due September 6)
- Homework 0: student information sheet (due September 6)
- Paper Review Set 1 (due September 9)
- Readings to prepare you for Research and Report Writing
Required Video (for Background)

  - http://www.youtube.com/watch?v=BJ87rZCGWU0&list=PL5PHm2jkkXmidJOD59REog9jDnPTDG61J&index=1

- Watch by September 6
Recommended Background Videos and Lectures (I)

- All 447 lecture videos and notes are at:
  - http://www.youtube.com/playlist?list=PL5PHm2jkkXmidJOD59REog9jDnPDTG6IJ

- Please watch as many as you can, to brush up on background material

- Required video
  - Lecture 1: Basics of Computer Architecture
    - http://www.youtube.com/watch?v=BJ87rZCGWU0&list=PL5PHm2jkkXmidJOD59REog9jDnPDTG6IJ&index=1
Recommended Background Videos and Lectures (II)

- Lectures 2-3: Fundamental Concepts and ISA, ISA Tradeoffs
  - [http://www.youtube.com/watch?v=BqJgYN6S6Qw&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=2](http://www.youtube.com/watch?v=BqJgYN6S6Qw&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=2)
  - [http://www.youtube.com/watch?v=BqJgYN6S6Qw&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=3](http://www.youtube.com/watch?v=BqJgYN6S6Qw&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=3)

- Lecture 8: Pipelining
  - [http://www.youtube.com/watch?v=5E_W7EeNs8U&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=8](http://www.youtube.com/watch?v=5E_W7EeNs8U&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=8)

- Lecture 9: Data Dependence Handling
  - [http://www.youtube.com/watch?v=Gpz1I47LfDo&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=9](http://www.youtube.com/watch?v=Gpz1I47LfDo&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=9)

- Lecture 10-11: Branch Prediction
  - [http://www.youtube.com/watch?v=XkerLktFtJg&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=11](http://www.youtube.com/watch?v=XkerLktFtJg&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=11)

- Lecture 16: Virtual Memory
  - [http://www.youtube.com/watch?v=ppPq-ntaAWU&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=16](http://www.youtube.com/watch?v=ppPq-ntaAWU&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=16)
Recommended Background Videos and Lectures (III)

- **Lecture 22: Memory Hierarchy**
  - [http://www.youtube.com/watch?v=JBdfZ5i21cs&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=22](http://www.youtube.com/watch?v=JBdfZ5i21cs&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=22)

- **Lecture 23-24: Caches**
  - [http://www.youtube.com/watch?v=TpMdBrM1hVc&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=23](http://www.youtube.com/watch?v=TpMdBrM1hVc&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=23)
  - [http://www.youtube.com/watch?v=TboaFbjTd-E&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=24](http://www.youtube.com/watch?v=TboaFbjTd-E&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=24)

- **Lecture 30B: Multiprocessors**
  - [http://www.youtube.com/watch?v=7ozCK_Mgxfk&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=31](http://www.youtube.com/watch?v=7ozCK_Mgxfk&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=31)

- Please go back and watch these videos any time to synchronize your background with the expectation
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Homework 0: Information Sheet

- Our way of getting to know about you fast
- Please attach a recent picture and turn in as PDF
- Please answer thoroughly
- All future grading is predicated on this...
- Due September 6
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- Readings to prepare you for Research and Report Writing
Review Set 1: **Due September 9**

- **Mutlu**, “Memory Scaling: A Systems Architecture Perspective,” IMW 2013. *(Think project ideas)*

  - [http://www.cs.virginia.edu/~robins/YouAndYourResearch.html](http://www.cs.virginia.edu/~robins/YouAndYourResearch.html)


**Due September 9**
Optional Readings

- Amdahl "Validity of the single processor approach to achieving large scale computing capabilities," AFIPS Conference, April 1967.

- G. E. Moore, "Cramming more components onto integrated circuits," Electronics, April 1965

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Required Reading: Due September 9

  - [http://www.cs.virginia.edu/~robins/YouAndYourResearch.html](http://www.cs.virginia.edu/~robins/YouAndYourResearch.html)

- Due September 9 – as part of your review set
Supplementary Readings on Research, Writing, Reviews

- Levin and Redell, “How (and how not) to write a good systems paper,” OSR 1983.
- Jones, “How to Write a Great Research Paper”
  - Read this to get an idea of the publication process
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