Great Ideas in Computer Architecture (aka Machine Structures)

Lecture 40 – Summary & Goodbye

HUMAN BRAIN IS LIMITING GLOBAL DATA GROWTH

“Evidence has emerged that the brain’s capacity to absorb information is limiting the amount of data humanity can produce”

6 Great Ideas in Computer Architecture

1. Abstraction (Layers of Representation/Interpretation)
2. Moore’s Law
3. Principle of Locality/Memory Hierarchy
4. Parallelism
5. Performance Measurement & Improvement
6. Dependability via Redundancy

We learned Old-School “Machine Structures”

Coordination of many levels (layers) of abstraction

...and New-School Machine Structures

It’s a bit more complicated!

We made HW/SW contact!

Upcoming Calendar
Administivia: Become active!

- Final Exam details
  - Only bring pen, pencils, two 8.5”x11” handwritten sheets (writing on both sides) + green sheet.
  - Leave backpacks, books, calculators home!
  - Everyone must take ALL of the final!
- If you did well in CS3 or 61[ABC]
  (B or above) and want to be on staff?
  - Usual path: Lab Assistant ⇒ Reader ⇒ TA
  - LA: sign up w/ Jenny Jones [jenny@eecs] before 1st week
  - Reader/TA forms: www.cs/~juliea/
  - I strongly encourage anyone who gets an B or above in the class to follow this path…

Dan’s Research Projects

- CS Illustrated
- Ensemble
- Improve CS10/Snap!
- Improve codepath

Taking advantage of Cal Opportunities

"The Godfather answers all of life’s questions”
- Heard in “You’ve got Mail”

- Why were we the #2 Univ in the WORLD?
  - From the 2004 ranking from the "Times Higher Education Supplement"
  - Research, research, research!
  - Whether you want to go to grad school or industry, you need someone to vauch for you!
  - … as is the case with the Web
- Techniques
  - Find out what you like, do lots of web research (read published papers), hit OH of Prof, show enthusiasm & initiative
  - http://research.berkeley.edu/
  - http://researchmatch.heroku.com/

Opportunities Fall 2013

- CS150 (Digital Systems Design Techniques)
  - If you liked SDS, this is a great follow-on course!
- CS9 Series (Learn another computer language)
  - I recommend Python (CS9H), Unix (CS9E), C++ (CS9F)
- GamesCrafters (Game Theory R & D)
  - Develop SW, analysis on 2-person games of no chance (e.g., go, chess, connect-4, nim, etc.)
  - Req: Game Theory / SW Interest
- MS-DOS X (Mac Student Developers)
  - Learn to program Macintoshes
  - Req: Interest Owning a mac helps, not required.
  - Taught as a Decal by MS-DOS X veterans
- UCBUGG (Recreational Graphics)
  - Develop computer-generated images, animations.
  - Req: 3D interest
  - Taught as a Decal by UCBUGG veterans

The Future for Future Cal Alumni

- What’s The Future?
- New Millennium
  - Ubiquitous & Quantum Computing, Nanotechnology, 10 M “volunteer” CPUs, the Parallel revolution…
  - Rapid Changes in Technology, Post-PC Era!
  - World’s Best Education
  - Never Give Up!

“The best way to predict the future is to invent it”
- Alan Kay

The Future is up to you!