

# Welcome to 548!

- Who are you?
  - 80% first year CSE
  - 2 non CSE
- 2-3 theory
- 6 AI
- 2 compilers
- 0 graphics / comp-bio
- 3 architecture
- 3 systems
- 1 unknown

# What do you want from this class?

- How do these u-proc's work?
- Full-fill quals requirements
- Is this for me?
- Where is architecture going?

# A little about me...

- Not a superscalar architect
- Wondered if I was an architect after grad school
- Used to think about the memory system
- Now I think about:
  - Scalable computation
  - Quantum hardware

# What is Computer Architecture?

- Drawing pictures so engineers can build it
- How processors/memory/I-O interwork
- The ISA Hardware/Software interface

# What are the major architectural innovations of the last 50 years?

- RISC
- Superscalar/OOO
- Pipelining
- Caching/ trace cache
- VM
- Branch prediction
- SMT or in Portland.... HyperThreading

# What do computer architects do?

- Draw pictures / Add widgets
- Write simulators
- Identify issues
- Measure results
- Write papers
- Adapt architects to technology
  - And vis-versa

# How do we do our work?

- Read existing literature
- Think idea
- Hypothesis testing