The A-B-Cs of Finding a Research Problem

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ABOUT ME

- Ph.D. ’02 University of Illinois at Urbana-Champaign
- At Cornell University since Fall ’02
- Research: µprocessor design / computer architecture
  - Self-optimizing µprocessors
  - Accelerators for graphical models
- Teaching: Embedded systems, µarchitecture
ACT EARLY

- Start thinking a year before
  - Can use adviser, peers as sounding board
  - Will help with research statement, interviews
  - Will help with those first NSF proposals
  - Will help get those first 1-2 Ph.D. students busy
BE WHERE THE ACTION IS

- Go to your top conferences
  - You don’t have to have paper in it
  - See what problems people are attacking
  - Identify and meet potential collaborators
  - Talk about your research (and ask about theirs!)
CHANGE TOPIC, CAREFULLY

- Avoid problems your adviser works on
  - Including but not limited to your Ph.D. thesis
- Change topic, but don’t change how you execute
- Avoid reinventing yourself
- Avoid heavy infrastructure development
DESCEND FROM IVORY TOWER

- Visit industry folks often
- Listen more, talk less
- Send your students on recon missions (internships)
- Make sure they will work on stuff relevant to you
- Attend (organize) weekly seminars with other Faculty
- Cross-pollination, friendly feedback
ESCAPE FROM DISTRACTIONS

- Finding and nurturing a research topic requires *time*
- Grab 1-2 strong Ph.D. students early (startup funds)
  - Spend a lot of time with them, teach them to think *with* you and work *for* you
- Be a good instructor, not an excellent instructor
- The only committee you should care about in your first three years is graduate admissions
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