Launching a Research Program

Jeanine Cook
Associate Professor/Principal Member Technical Staff
Klipsch School of Electrical and Computer Engineering
New Mexico State University/Sandia National Laboratories
My Career Path

• Started planning BEFORE I was a PhD student
  – Affects where you choose to go to grad school
• New Mexico State University
  – Currently Associate Professor (in transition to SNL)
• Principal Member Technical Staff, Sandia National Laboratories
  – Scalable Architectures
Identifying Promising Research Directions

• A: Look at where your work fits into state-of-the-art (by the time you finish, the landscape may change)
  – Read up on current literature

• B: Spend time thinking about where area is going
  – Pick brains of other people and leaders in your field

• C: Write up a plan
  – Determine end-goal and come up with “baby steps” to get there (BTW, each baby step should be paper)
  – Ask for feedback from more senior people to get scope focused to something do-able
Investing Start-Up Funds and Acquiring Additional Funds

• Hire a good student or two
  – Do not hire a student until you know enough about them to make a good investment!
    • Scope them out in grad classes your first semester
• Use some funds to travel to top conferences in your field
  – Listen and talk to people! Will help formulate your research plan.
• Start writing proposals early!
  – Submit to “smaller” opportunities for new faculty first
    • National Labs, Industrial research organizations
  – Use “smaller” funds to buy time to get started on submitting to “larger” opportunities
    • NSF and similar agencies
Recruiting Students

• Top students in your grad courses
  – Have them do a small project with you before making decision to hire

• Review grad applications to your department
  – Phone/in-person interview
  – Get top students before anyone else knows they exist!

• Strong undergrads
  – Ugrad research programs (LSAMP)
  – Honors Societies (HKN)
Mentoring and Preparing Students for Research

- Get them to take courses early that prepare them for your research
- House your students together
  - They answer each other’s questions instead of asking you (which gives you more time!)
- Set up a hierarchy of students
  - Ugrad work supporting MS work
  - MS work supporting PhD work (have PhD help in supervising/teaching)
- Figure out what sort of student you’re working with
  - Some actually do better if you give less direction (even when they think they need more)
  - Some need a significant investment in time (maybe work in the lab with them) at beginning