Planning Your Research Career

CRA Career Mentoring Workshop
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Columbia University
Julia Hirschberg in One Slide

Technical Career

- PhD in History, UMich
- Asst Prof at Smith
- Saw the light: PhD in CS, UPenn
- Bell Labs/AT&T Labs: MTS and Dept Head
- Move to Columbia CS
- CS Chair with 7 PhD students
- Speech and NLP

Family and Fun

- Married to Dan Hirschberg
- Cats: Oliver and Dahlia
- Hobbies: opera, plays and musicals, cooking, travel, Duolingo
General Career Tips

• Know yourself
  – Strengths and weaknesses
  – Be honest with yourself
• Do work you really love
  – Enjoy what you do...or do something else
• Work hard...and don’t stop when you get tenure....there is a whole career after tenure
  – More Best Papers, journal editor, PC Chair, plenary talks, Fellow, Professional Society Awards, Department Chair...
Academia 101

• Criteria for Success: Research, Service, Education
• Path
  – (Postdoc) → aP → AP → Tenured AP → Full
    • At some schools AP and Tenure come at the same time
  – Along the way and beyond
    • *Opportunities* for administrative and service positions in academia and government; sabbaticals and leaves
• Impact is what matters
  – Quality, not quantity, but ... *there are limits*
  – Ideas and people (students) are your legacy, not papers, but ... *great papers get you there*
Choosing a Research Problem

• Does it interest you?
  – Does it interest others?
  – If not, should it? can you convince them?
• Nature of research will change throughout your career
  – Rule of thumb: Look for progress/results within 2-3 years
• Be ambitious and bold but ... also take advice
• Look for intersection between opportunities (for funding, collaboration) and new questions: e.g. DARPA
  – Often great ideas come from others’ research: i.e. I could do that better. They didn’t do X. If X then...
• Don’t be afraid of interdisciplinary research but ... make sure you are well-connected in both disciplines and can be clear about your own contribution
Finding Solutions

• Scientific method: Three Pillars of Science
  – Experimental: Hypothesis, design experiments, run, evaluate, iterate
  – Theoretical: Solution is proof and algorithm or impossibility result
  – Computational
    • Algorithmic, software
    • Big Data and DNNs are now huge but...what’s next?
Doing Research

• Ask for feedback
  – Talk about your work with colleagues, students
  – At conferences, with industry

• Keep a research diary
  – Always be writing down your great ideas, research decisions and why

• Work with others...but judiciously
  – Colleagues, post-docs, graduate students, undergraduates, visitors
  – Make sure your contribution is clearly recognized
Educating

• Take educational responsibilities seriously
  – Teaching: develop new courses, curricula, and degree programs
  – Advising graduate students and undergrad project students
• Balance teaching and research
  – Teaching doesn’t just mean lecturing but also
    • Making up homeworks, labs, exams, managing TAs and infrastructure, *dealing with huge classes*
    • Online learning courses are *not* for junior professors but flipped classroom approaches can be fun
Communicating

• Networking is enormously important
  – Ask questions at conferences...*you can prepare in advance*
  – Introduce yourself to senior people in field and program directors at conferences and workshops but ... *don’t neglect your peers*

• Meet colleagues on campus ... *in other fields that might produce collaborations*

• Speaking
  – Know your audience and practice all your talks

• Writing
  – Know your audience and publish in top conferences and journals ... but not just these
  – Workshops are for getting ideas out quickly and early feedback ... and they *do* count too as publications
Academic Career Advice

• Don’t obsess about tenure
  – Just do good work and tenure will come but ... get feedback and listen
  – Schools go through *lots* of trouble to hire you – they **want you to succeed**

• Get mentors in your department and in your field outside
  – Your mentors may change over your career

• Take sabbaticals and leaves as they are offered
  – Leave home: go to other schools, industry, government, abroad
  – There is never an ideal time, just do it!

• Make time for yourself and your family
Service: You are Part of Two Communities

• Your research community
  – Early on:
    • Program committees
    • Panel or ad-hoc reviewing for funding agencies
    • Reviewer for journals and conferences
  – Later:
    • Program chair, journal editor, conference organizer, organizational boards and officers

• University community
  – Programs, Department, School, University committees: more networking at home
Remember

• If your department hired you, they really want you to succeed
  – Don’t hesitate to ask your chair and your mentors for advice
• Schools typically have resources to help with teaching, dishonesty issues, even interpersonal problems with colleagues
• Enjoy your students: they’re a large part of why we’re in academe
  – Let them know when they show up what you expect
  – Take care of them as you’d wish to be helped
Questions?
Resources

- Dave Patterson’s Non-Technical Talks

- Jeannette Wing’s Tips on the Interview Process
  - [http://www.cs.cmu.edu/~emigration/interview.pdf](http://www.cs.cmu.edu/~emigration/interview.pdf)

- Jeannette Wing’s “Twelve Tips for Department Heads from an NSF Perspective”

- Advice about everything:
  - [http://web.engr.illinois.edu/~taoxie/advice.htm](http://web.engr.illinois.edu/~taoxie/advice.htm)