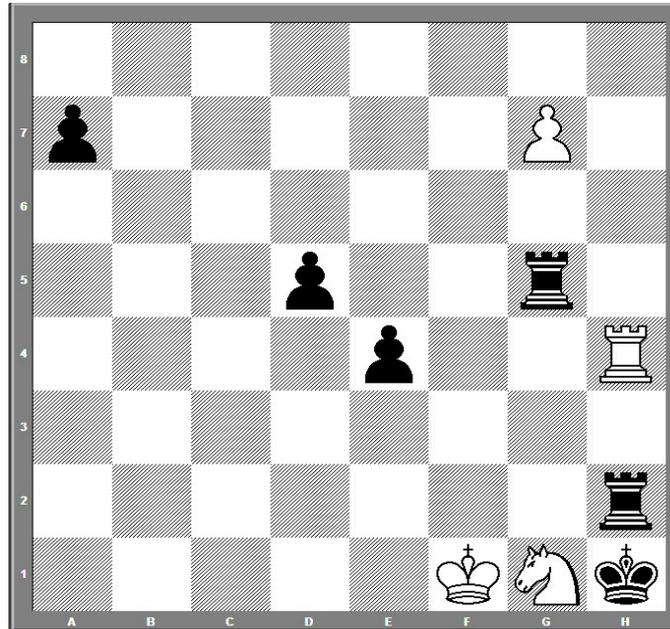


Grad School The End Game



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Caveat and Assumptions

- This is a talk about how to successfully interview and get a job
- It summarizes my observations
 - Predominantly in systems
 - Predominantly at a university
 - Predominantly at a research institution
- Your mileage may vary

To a First Approximation

- Your performance in the end game is determined mostly by how well you take advantage of prior opportunities
- Final evaluation criteria include
 - Strength: have clear, concise, non-incremental thesis contribution
 - Breadth: an understanding of other areas
 - Taste: demonstrate an ability to pick good problems
 - Papers
 - Visibility: give talks, attend conferences, participate in funding proposals, organize workshops
 - Initiative
 - Knowledge: take classes outside your area, attend colloquia
 - Maturity: know how the world works
 - IMPACT: change the world

Timeline for Academic Positions

- N-1 years: Publish, talk, network
- Sep-Dec: Prepare packet
- Dec: Send packet, emails
- Jan-Feb: Invites
- Feb-May: Interviews, email, followups
- May-June: Second visits, negotiate
- June: Decide and Inform

Timeline for Industry

- N-1 years: Publish, talk, network, do internships
- Any time: Apply
- Interview: Within a month or two
- Negotiate: Within a few weeks of interview
- Works slightly better if done in sync with the academic calendar

When to Interview

- You should interview only after you have had impact, can describe and contextualize it well
 - Practically, the intro and related work chapters of your thesis need to be ready, the bodies of the rest of the chapters need to have been published in conferences
- Many graduate too early, few too late
- If remaining in school can help you extend the impact of your work, you should

Timing Finesse

- Offers will follow a Zipf distribution
 - “Top person” that year will get offers from essentially everywhere
- It is very difficult to gauge your global timing or what others will do
- But do coordinate with others in your own group, as your advisor will be forced to rank all concurrent graduates

Where to Apply

- Academic Institutions
 - Research vs. Teaching
 - State vs. Private
 - Small vs. Large
 - US vs. Abroad
- Industry
 - Research vs. Development (vs. Google?)
 - Established Lab vs. Startup
- Other
 - Government agencies
 - Non-profits

Academic Research vs. Teaching

- Primary focus is on research impact
 - Top places will still weight teaching highly
 - Light teaching load (1 ugrad+1 grad course), repeat assignments
 - Resources (students + colleagues + funding + tools + space) to facilitate research
 - Modest university service requirements
- Teaching institutions
 - Heavy teaching load (4-5 courses per year)
 - University service is important
 - May be asked to teach a broad range of courses, e.g. architecture and theory
 - Interview typically involves teaching a lecture

Institutional Considerations

- Large vs. Small
 - Cornell is mid-size, tending towards large
 - Smaller departments will have larger gaps between areas
 - There are centers of excellence everywhere
- Private vs. State
 - Perhaps more beaurocracy, perhaps not
 - Not really a big difference for large schools
- Abroad
 - Conditions depend immensely on national priorities and economic climate
 - Make sure these will not change! (e.g. Iceland in 2004)

Industry

- Every company has its own distinct culture
 - Typically flows from the top down
 - It will not change in a decade or more
 - Make sure this is a good fit for your personality
- Every company will want "impact on the bottom line"
 - How this is measured changes
- Summer internships are the best way to get to know a company
 - Don't go too early; not enough of a base
 - Don't go too late; distraction from thesis
- Make sure the company is committed to the lab and style of work you have in mind
 - For 10 years. The company should be viable as well.

How to Decide

- Rank and pick institutions that you like
 - Err on the side of applying
 - Disregard official ads and calls
 - Ask around at conferences for what each school is seeking that year
- Then apply to some institutions that you don't think you would like
 - You might be surprised and even change your mind
 - Often the best way to find out what others are doing
 - Leads to lifelong connections and collaborations

Two-Body Search

- Must be synchronized!
 - Do not go to a place assuming that the trailing spouse will be able to find something
 - Some institutions will take advantage of your spouse once you're invested in being there
- Be open about it.
 - The employers are officially prohibited from asking, but you should let them know, so they can help you and the second body

Post-Docs

- Three kinds:
 - Taken to boost your CV prior to performing a broad job search
 - Make sure you spend enough time at the postdoc to significantly improve CV. 1 year is typically too short
 - Taken after performing a job search and after securing a position but before starting, to broaden one's perspective
 - A fair number of theoreticians do this, with excellent results
 - You apply for a tenure track position, they cannot make an offer, but someone offers a postdoc position instead
- Do not apply for both a postdoc and a tenure track position at the same time at the same institution

Application Packet

- Academic CV
 - Must include all papers, talks, projects, software distributions, internships and MEngs
- Research Statement
 - 4-5 pages, weaves a yarn through all past work, with a blue-yonder vision for the future
- Teaching Statement
 - 1-2 pages, most are content-free, some are stellar
- References
 - 3-4 people. Critical.

Web Presence

- You should have a professional-looking web page
 - Best to start in your first year
 - Should list all papers, talks, software
- Packet should be online as well
- Cannot sufficiently emphasize how important web presence is today

Contacts

- After you submit your packet, you should email ONE (1) person per institution ONCE
 - That is, one person, once
- You should have cultivated these relationships at conferences
- Never spam. Individualized note.
- Never repeat, nor ask for how your case is doing.
 - Asking can only make things worse

The Long Wait

- Sit patiently as each institution hems and haws about the candidates, the areas they want to hire in, etc
- This is by far the most stressful thing you will ever do
 - Good time to work on that thesis

The Interview

- Talk
- One-on-Ones
- Dinner and Lunch
 - The interview is still on
- Stay
 - Always take the offer to stay at someone's house

The Interview Talk

- Three things everyone checks for:
 - Is this an interesting area?
 - Was the work done competently?
 - Is this the kind of person I want as a colleague?
- Two schools of thought:
 - Make it accessible to everyone, throughout
 - Go deeper until you lose everyone except one person, then unwind
 - Do the former, your colleagues already know your work

One-on-Ones

- Be prepared to answer questions about:
 - People at Cornell: *"What's ___ up to these days?"*
 - Developments at Cornell: *"What's going on at Cornell NYC?"*
 - Developments in your field: *"What are the hot topics in area ___ these days?"*
 - Hot areas in CS: *"Is cloud computing all hype and if not, what are the fundamental problems?"*
 - Related work: *"Wasn't this done in Multics/IBM 360/the Connection Machine/at DEC SRC/Cray/Tera?"*
 - Hopcroft question: *"Where is CS going in the next 10 years?"*

Interview Problems

- Deadwood
 - Defenses: nod nicely, try to figure out if they will play a critical role in defining your circumstances. If problematic, ask chair what is going on.
- Annoying person at the talk
 - Problem personality/derailer; someone with a pet peeve; someone who wants to use your talk to push their agenda on you and everyone else
 - Aggressive contemptuous grad student; disgruntled post-doc
 - Well-meaning but misguided person
- Defenses:
 - Hold your ground. There may well be interesting tangents off of your work, but if you did your work right, that's not the topic you are there to discuss
 - Sometimes, problem personas are well-known in advance; you are expected to corral the problem personality/derailer
 - If they are really annoying and the locals are helpless, you might want to re-think if you want to work there
 - Some idiots come with their own idiot-destructors in the audience; this is awesome – let nature take its course, but control the talk
 - Never be harsh to the well-meaning but misguided
- Non-problem: theft of ideas! Be open about future work with everyone.

How Interviews Fail

- Need to create a two-way exchange of ideas
 - "Let me tell you about me!" "Let me give you a lecture and a tirade for free!"
- Inadequate preparation
 - "What is it that you do again?"
- Lack of perspective
 - "No idea where the field is going; I just did what I was told"
- Lack of context
 - "Let me borrow ideas from field X and sell them in field Y, without credit."
- Lack of background
 - "We invented this field from scratch, so I never had to read past work."
 - "I'm part of a write-only paper generation machine"
- Neither fish nor fowl
 - "I work at the intersection of fields X and Y, but really in neither."
- Be careful about what you say about other researchers; it's a small world
- Be careful about what you say about your own institution; private matters should remain private

People to talk to

- In area colleagues
 - Great fun!
- Out of area colleagues
 - Potential collaborators
- Chair
 - Ask about dept culture, mentorship, resources, tenure stats, challenges they face, their hiring vision, ...
- Dean
 - Ask about institutional priorities, whether they know how to handle empirical CS work at the institution level
- Staff
 - What are your IT needs?

Post-Interview

- Email and thank your host
 - If the interview went well, rest assured that they played a large role in it
- Follow up on people with whom you had interesting one-on-one's
- Send receipts to the admin who helped
- Sit and wait patiently

The Offer

- You may get offers during your interview, shortly afterward, or way afterward
- Get them in writing
- An offer will contain
 - Salary (9 month), Summer Support
 - Benefits
 - Student Support, Startup Funds
 - Equipment? Space? Staff?
- Make everything you need part of the written official offer
 - Do not rely on good will and warm fuzzy feelings. Institutions, esp. large institutions, sometimes act in a schizophrenic manner, where they want you but fail to provide you with what you need.

Managing Offers

- Schools will start checking up on you
 - 10 offers, 3 calls/week = 30 calls/week!
- Be direct and open
 - "I am waiting to hear from school X"
- They may give you an expiration date
 - If they really want you, they will wait indefinitely
 - One reasonable thing you might hear: "We need you to decide by date Y, so we do not miss out on other candidates this year"
- Do not feel pressured, keep the process tasteful and open

Deciding

- Pick one place, see if you can imagine working there for at least 7 years
- Talk to mentors
- Call your contact and let them know
 - They'll be ecstatic
- Write a nice, gracious note to all the other places
 - They'll be supportive and nice, but some people may feel personally let down

Finishing Up

- Finish your thesis before you leave!
- Don't start until you are really done
 - Clean the slate
 - This includes submitting all those journal papers related to your thesis

Summary

- To do well, you have to be prepared
 - Build a strong track record
 - On top of trends in your own area and others
 - Develop good taste and perspective
- Some organization among graduating grad students may help
 - Seminar on trends in different areas
 - Mailing list for last year students