The Job Search

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Finding a Job

- **General**
  - Know what you want
  - Your application
  - Preparing your talk
  - Preparing for the interview
  - The big day!
  - After the interview
- **Academia**
- **Government**
- **Industry**

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What are you looking for?

- What kind(s) of position are you looking for?
  - Research university? Research lab? Liberal arts college? Post-doc? Development? Start-up?
- What type of environment do you want to you work in?
  - Small or big department? Join an established research group or start one?
- Where are you (and any significant other) willing to live?
  - West coast? East coast? Midwest? South? Urban? Rural? International?

Your Application

- Cover Letter
- Curriculum Vitae (CV)
  - Degrees, research and teaching experience, jobs held, honors and awards, papers published, professional service, ...
- Research Statement (2-3 pages)
  - What is your vision for your future research?
- Teaching Statement (only academic,1-2 pages)
  - What is your vision? What do you want to teach?
- Letters of recommendation (3-5 people)

Identifying Letter Writers

- Letters are very important
- With your advisor, choose people who are
  - Familiar with your research
  - Respected in the academic community
  - Expected to write a meaningful and positive letter
- Consider (in addition to advisor)
  - Members of your research community
  - Internship advisors
  - Members of your thesis committee
  - Other professors at your institution
- Give letter writers a copy of your application material

Preparing Your Job Talk

- Provide enough background so people outside your area of research can follow
- Identify a challenging problem with impact and identify your specific contributions
- Show you understand any weaknesses/ limitations of your approach and/or your results
- Thank your collaborators
- Include future research ideas and interests

Tips

- Get input from your advisor
- Give practice talks to a wider audience at your institution
- Consider any feedback you get.
- Get the audience to ask questions, even weird ones, and to play “difficult” personalities.
- Video your talk and (gulp!) watch it.
- Practice until you are comfortable but not bored.
- Have a backup copy of your talk.

The Selection Process

- Expect to use an application website
- Some departments/labs ask for letters for all applicants, others only for the selected ones
  - Letters are typically uploaded
- Some departments will let you know that there is a “no match,” but often you will not hear *anything*
- Government lab hiring is notoriously slow
- Few applicants will be invited for an interview
  - Telephone interviews are becoming more common (very common for teaching institutions and labs)

Preparing for an Interview

- Do your homework – understand the organization!
  - Know the research areas and accomplishments of the people you will meet; prepare questions for them.
- Find answers to
  - What are the strengths (and weaknesses) of the organization/institution/group/department?
  - How might your research capabilities complement and integrate with the organization/department?
  - What role does the group/department play in the institutional structure?
  - Why are you interested?

The Big Day(s)

- Don’t set up a crazy travel schedule
- Get plenty of sleep, eat healthily, and wear comfortable clothes
- Enjoy and have fun
- Try to imagine yourself in the environment
  - Do you like the organization/environment?
  - Do you want these people as your colleagues potentially forever?
- Remember: you are interviewing them too!

Tips

- Be enthusiastic! Show passion about something.
- Interpersonal skills are important.
  - Do they want you as their colleague?
  - Don't say negative things about other institutions or people. It can come back to haunt you.
- Always tell the truth
- Remember you are representing your advisor, your department, your university.
- Consider when or whether to mention any two-body challenges.

After the Interview

- Evaluate how it went – revise your materials if necessary
- Talk to your advisor
- Follow up with anything you said you would do
- File for travel reimbursements promptly
  - Read the instructions carefully and keep copies of receipts
- Send notes thanking people you particularly enjoyed talking to
- Okay to contact the chair/lead if you have an another offer

ACADEMIC POSITIONS

Where to apply?

- Identify
  - “stretch,” “eye-level,” and “safety” departments
  - departments having openings in your area
- Check ads: CRA, CACM, IEEE Computer, departmental websites
- Certain research areas can match the hiring goals for more than one department (e.g., CS, ECE, I)
- Don’t apply somewhere you are 100% sure you won’t go. Certainly do not visit.
- Keep an open mind! You might be surprised what you end up liking the best.
- Academic non-teaching due dates: November, December

Typical Academic Interview

- ~2 days
- The interview talk (preferably early, not at the end)
- 30-minute one-on-ones
- Meet with department head/chair (and dean)
- Meet with a small group of grad students
- Meals

Goal: Convince them that you will add strength to their department in important areas (research, teaching and service) and will be a collegial department citizen

Questions You Will be Asked

- ***What is your vision for the field?***
- What was the novel insight and/or long-lasting scientific contribution of your thesis work?
- What do you want to work on next and why? What would you write in a proposal?
- How do you choose problems to work on?
- Why you are interested in this institution?
- What courses would you like to teach and why?
- What is your philosophy about teaching students?
- Do you have questions for me?

Questions You Should Ask

- What's the best thing about the department?
- How are departmental decisions made?
- Are faculty encouraged to collaborate with each other?
- Graduate students
  - How good are the graduate students? What jobs do they take?
  - How are they supported?
- How is interdisciplinary research viewed?
- How is collaborative research viewed?
- What is the teaching load? How are teaching assignments made?
- How will I be evaluated? What is the tenure process?
- Do junior faculty have a mentor? Chosen how?

Negotiating the Offer

- Start date
- Teaching load and 1st year teaching assignment
  - For your first year, ask to teach an advanced grad course, or to co-teach an undergrad course
- Research start-up package
  - Grad student support, travel funds, summer salary, equipment, lab and student space
  - committee reduction, teaching-load reduction
- Tenure clock issues (clock credit, clock stoppage)
- Salary
- Subsidized housing, moving expenses
- Campus parking, child care facilities/cost
- Help with obtaining an H1-B visa (if you're non-US)

What is Often *Not* Said

- Most faculty get tenure
  - Most departments hire expecting/hoping to award the person tenure
  - Hiring and mentoring of junior faculty is expensive, in time and money
- Academic research positions provide the most flexibility in terms of future options
  - Often difficult to move from a teaching position to an industrial position
  - Often difficult to move from a teaching or industrial position to a faculty position

Post Doc Positions

Taking a post-doc position is becoming more common in CS (standard in other fields)

Funding opportunities exist

- NSF, ONR, …
- Industry and government labs
- Well funded research groups (often no official ads)
- Some number have citizenship requirements

2-Body Opportunities: When to tell?

In the cover letter

- Useful only if it involves two academic positions
- If it involves a different department, it allows the departments to explore options early

After invited for an interview

- They have already decided they are interested in *you*
- Make it clear what you will accept

During the visit

- Can discuss your needs and the options
- Can be distracting to the interview (consider only discussing with head/chair)

When an offer is made

- There may not be enough time

Related Links

- J. Wing's "Tips on the Interview Process" http://www.cs.cmu.edu/afs/cs/usr/wing/www/talks/tips.pdf
- Appropriate and Inappropriate Interview Questions; http://www.purdue.edu/oie/Search_Screen/FacultySearchScreenManual.pdf (Page 34)
- CRA's Taulbee Survey http://cra.org/resources/taulbee/

GOVERNMENT/NATIONAL LAB POSITIONS

Government Lab Environment

- Projects tend to be collaborative, multi-disciplinary and often large in scale
- Working on science problems of national priorities (national security problems at many labs)
- Opportunities to get involved in pure research and applied research problems
- Work on problems that require new research solutions
- Advise graduate students through university affiliation and internships
- Opportunities to collaborate with academia and industry

Government Lab Research

- Mix of soft money and block funding (depends on the lab)
- Research projects need to fit with the priorities and interests of the agency
- National facilities/resources (leading edge capabilities)
- Encouraged to publish research papers (unless classified research)

Additional Notes

- Typically looking for long-term employees (even when a term-position is advertised)
- Postdoc salaries pre-defined so no negotiation
- Joint appointments with university possible
- Some positions have a citizenship requirement
- Ask about evaluation criteria and management structure (different at each lab)

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INDUSTRY POSITIONS

Why Consider Industry?

- You want to see the impact of your work in the ***real world*** on ***real users*** with ***real data***
- You want to expand your skill set and gain exposure to a wide range of technical challenges
- You want flexibility in choosing your geographical location-industry provides greater options
- You like working with diverse multi-disciplinary experts (EE, CpE, CS, etc…) in a multi-geo environment
- Opportunity to collaborate with varied stakeholders (govt., academia, industry)
- Leadership opportunities—own a project or own a functional area of a larger project
- Career development and growth opportunities — targeted development programs for growth

Industrial Research Lab

- Often considered innovation engine of the company
- Research aligned to corporate objectives with a strong focus on strategic visioning/innovating for the future(5-10 yrs out)
- Focused on product roadmap impact as well as knowing where the puck is going for the business
- Innovation not just invention
- Usually 3 phased approach to innovation- Research, Prototype (proof of concept), Transfer- seamless pipeline to market
- Opportunity to collaborate across the Labs, company, external partners (industry, academia, govt.) on your project
- Personal accomplishment- see the impact of your work on real users

Industrial Research Lab

- Ability to build acumen in adjacent research areas outside of your primary area of interest
- Experience the full life cycle of development from research to product
- Publish papers/file patents
- Personal accomplishment- see the impact of your work on real users
- Risk Taking is valued
- Failing Fast, Fail Forward- ***"Better a $1M failure in the Lab than a $1B failure in the Fab"***
- Diversity of talent and expertise

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Industry Job Search

- Attend industry events and professional conferences (SWE, CRA-W, Grace Hopper) to meet company reps, hiring managers
- Present at conferences to build your network
- Leverage the connections that your professors have with companies you are interested in
- Create a profile on the websites of companies that you are interested in
- Identify a work environment that is aligned to your values, goals, work style
- Research the company and try to set up informational 1x1's with folks in the group that you have interest in
- Network, Network, Network!

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Preparing for an Interview

- Be able to speak to how your research is applicable to the company
- Be able to articulate your research in three parts:
  - challenge, results, impact
- Don't assume everyone you are talking to has a PhD.
  - make it plain and simple
- Speak to your leadership abilities across a variety of scenarios always conveying outcomes/results/impact
- Share examples of collaboration for results
- Don't apply if you have an aversion to coding: to many, it's considered an art, and should not be dismissed!
  - Akin to applying for an academic job and stating that you don't like to write papers or give talks.

Industry Research: Interview

- Similar to academic/government lab search
  - one day of 1:1 interviews + a job talk
- The match between your research and the company's objectives should be fairly obvious ✔
- Having a personal contact with a researcher in the lab is invaluable:
  - Will let you know about new ventures or proposals to which your research applies
  - Will invite the right people to your talk
- Demo of your results is a plus
  - evidence that your ideas work!

INDUSTRY POSITIONS
(not in Research Labs)

Industry: Software Engineering

- Emphasis on making things work
  - Simple may be better than clever
- Challenges often involve complex interacting software built across groups
  - Lots of interaction
- Many project choices and frequent movement between projects.
- sequential short-term projects vs. parallel long-term projects:
  - both possible and both can work
  - Choose wisely (get help from mentors!)

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Industry: Software Engineering Concerns

Will my expertise go stale?

Will I just be a developer?

Am I leaving research behind ?

If I change my mind, can I work at research lab or academia?

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Industry (Research and non-Research) Offer / Compensation

Title

Base Salary

- Expect to share info about competing offers
- Salary growth probable once on board

Additional Compensation

- Stock options and units
- Retirement plans and matching funds
- Incentive bonuses
- Medical insurance
- Other perks

Ask questions!

Get wise regarding negotiation

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