INTERVIEWING FOR ACADEMIC POSITIONS

Julia Hirschberg, Columbia University

CRA-W
Computing Research Association
Women

About this session…

- The slides will be online.

- Please feel free to ask questions or share ideas throughout!

Julia Hirschberg in One Slide

Technical Career

- PhD in History, UofM
- Asst Prof at Smith
- Saw the light: PhD in CS, UPenn
- Bell Labs/AT&T Labs: MTS and Dept Head
- Moved to Columbia CS 2002
- CS Chair with 7 PhD students (6 are female)

Family and Fun

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

Columbia Speech Lab

Some Personal Stories

- My interview experience:
  - Smith: multiple interview options but just took the first one, no negotiation
  - Bell Labs: many options explored and offers, negotiated
  - Columbia: many options explored and offers, negotiated
  - Recent experience on the ***hiring*** side
  - Lessons:
    - Apply to places you'd be happy to go to
    - Accept all the interviews you get
    - When you get an offer: Negotiate!

Outline

- Why academia?
- Applying for academic positions
- Preparing for interviews
- Arriving and At the interview
- After the interview
- Negotiating a job offer
- After you accept

Why Academia?

- Great students at all levels
- Colleagues in different CS areas and across the campus for interesting collaborations
- Less hierarchy (that matters to you)
- Eventual job security: so remember to keep up your publications!

Applying for Positions

- What type of position do you want?
  - Postdoc, lecturer, assistant professor
- What part of the country/world do you want to live in?
- Where do you look for job ads?
  - CRA https://cra.org/ads/
  - CACM https://jobs.acm.org
  - IEEE Spectrum, Academic Careers, Academic Keys
- Who will write your reference letters?
  - Your advisor
  - Your thesis committee
  - People you have done research or internships with
  - Ask them early and give them all the deadlines for each institution

Filling out the Application

- Update your c.v.
- Prepare your research statement: now and future
- Prepare your teaching statement: now and future
- Prepare the cover letter: one for each different institution and don't mix them up!
- Ask your advisor to check everything
- Submit to application websites
- Add your references' names and email
  - ***When you submit, make sure your references have received letter requests***
  - 2 days before the deadline, remind them

Preparing for Interviews

- Prepare your job talk (45m max)
  - Show slides to your advisor
  - Practice giving the talk with your friends but also a wider audience if possible
  - Take advice and update
  - Last slide: quick summary and future work
- Reply quickly to all invitations
  - You want the most flexibility in scheduling
  - Try to arrange the least “interesting” one first as practice
- Plan your schedule
  - Don’t do more than 1 per week if you can
  - Try to schedule locales together
- Plan what you will wear
  - Not too formal, not too casual, boring, and very comfortable

- Packs well
- Check the weather before you go: winter coat, umbrella, boots?

- Get your schedule for individual interviews, talk, student meetings, meals
  - Ask about a/v: can you use your own laptop? Do you need audio?
  - Check the web pages of all faculty you will meet
  - Get a short description of their work
- Prepare a list of questions to ask during individual interviews
  - Teaching load, tenure process, office/lab if you need
- Prepare a spreadsheet with items you are looking for in your new institution so you can rate the places you visit and compare

Arriving and At the Interview

- Make sure your host knows your travel information in case of delays (weather…)
  - Exchange cell #s with your host
- Go over your slides the night before, quickly
  - Get plenty of sleep
  - Get to your first meeting 10m early (in case of transit problems)
- At your talk
  - Take questions during but be ready to say “Interesting question! Let’s talk about that offline.”
  - Don’t let questions take up too much of your time!

After the Interview

- Send every faculty you met a short email thanking them for the wonderful time you had and mentioning at least one thing you really enjoyed
- Enter the pros and cons of the place in your spreadsheet before you forget
- Update your talk as needed
- Go over what went well and what did not and make adjustments

After the Interviews are Over

- Prepare for offers: think about the pros and cons of each place and create a rough ordering with your advisor
- Ask your advisor, friends for advice on what to ask for in
  - Salary
  - Startup: prepare specifics for summer salary, student support, equipment, anything unusual that you will need for your research
  - Specifics will justify your need and are helpful to the hiring department
  - Estimate these costs and prepare a spreadsheet to send

When an Offer Arrives

- Read it carefully
  - Talk to your advisor and get their advice
  - If you have questions about the offer, ask in email
  - Never accept the first offer: Negotiate!
    - Unfortunately while guys do, women often don't
    - If you have better offers, ask the current offerer to beat
    - Explain your "needs" list to justify asking for more
- If you have other offers you are really interested in, contact them and ask for them to beat the current offer
- Truth: If a department makes you an offer they ***really*** want you and will negotiate

When you Accept an Offer

- Inform any other offerers asap and thank them profusely, expressing deep regret and saying positive things about your visit and their department
- Clarify all bureaucratic details and timing with the offer you accept
  - Ask about admitting students, help with housing, getting an office, when you'll arrive, benefits
  - Ask for a second visit to get grounded
- Contact people at your new place and tell them how happy you'll be to come
- Now….finish your thesis!!

Resources

CRA-W and CRA Mentoring Workshops:

- https://cra.org/cra-w/for-faculty/
- https://cra.org/career-mentoring-workshop/

On Academic Life:

- http://blogs.scientificamerican.com/guest-blog/2013/07/21/the-awesomest-7-year-postdoc-or-how-i-learned-to-stop-worrying-and-love-the-tenure-track-faculty-life/
- http://dynamicecology.wordpress.com/2014/02/04/you-do-not-need-to-work-80-hours-a-week-to-succeed-in-academia/
- https://happyacademic.wordpress.com/2017/05/03/the-1-key-to-academic-success/

On Post-Docs:

- https://cra.org/resources/best-practice-memos/computer-science-postdocs-best-practices//

Tips on doing an academic job search:

- http://matt.might.net/articles/advice-for-academic-job-hunt/
- http://people.mills.edu/spertus/job-search/job.html
- https://homes.cs.washington.edu/~mernst/advice/academic-job.html

Job Ads:

- https://cra.org/ads/
- https://jobs.acm.org

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INTERVIEWING FOR INDUSTRY POSITIONS

Amanda Stent, Bloomberg LP

CAVEAT: US INTERVIEWS

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Amanda Stent in One Slide

Technical career

- 96-01 PhD in CS, U of Rochester
- 01-02 PostDoc, AT&T Research
- 02-09 Assistant/Assoc Prof, Stony Brook University
- 07-13 PMTS, AT&T Labs Research
- 13-16 PRS, then Director, Yahoo Labs
- 16-18 NLP Architect, CTO Data Science, Bloomberg LP

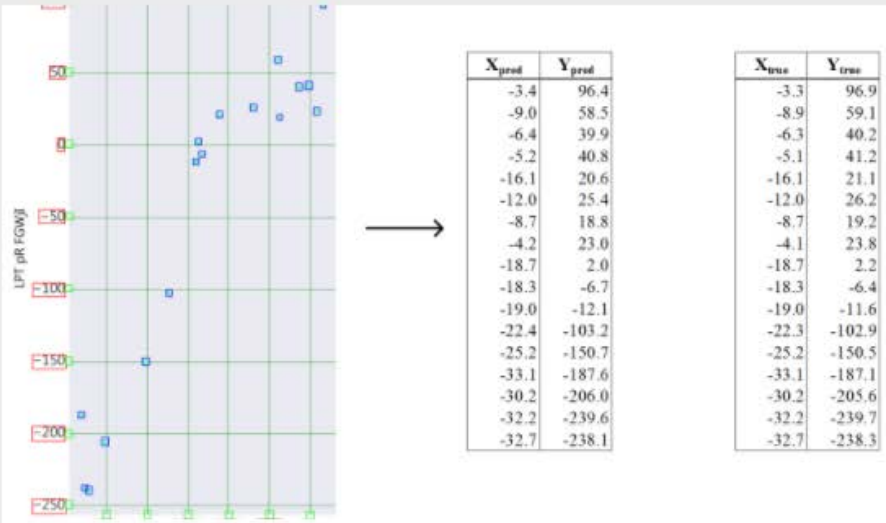
Family and Fun

- Married to Liam Michaelis
- Hobbies: EMS, music, aquaria, bird watching, murder mysteries

Data Science at Bloomberg

DATA SCIENCE

Bringing Together Academics, Not-For-Profits, and Industry at Bloomberg's Data for Good Exchange



X_{pred}	Y_{pred}
-3.4	96.4
-9.0	58.5
-6.4	39.9
-5.2	40.8
-16.1	20.6
-12.0	25.4
-8.7	18.8
-4.2	23.0
-18.7	2.0
-18.3	-6.7
-19.0	-12.1
-22.4	-103.2
-25.2	-150.7
-33.1	-187.6
-30.2	-206.0
-32.2	-239.6
-32.7	-238.1

X_{true}	Y_{true}
-3.3	96.9
-8.9	59.1
-6.3	40.2
-5.1	41.2
-16.1	21.1
-12.0	26.2
-8.7	19.2
-4.1	23.8
-18.7	2.2
-18.3	-6.4
-19.0	-11.6
-22.3	-102.9
-25.2	-150.5
-33.1	-187.1
-30.2	-205.6
-32.2	-239.7
-32.7	-238.3

DATA SCIENCE

Scatteract: The First Fully Automated Way of Mining Data from Scatter Plots

techatbloomberg.com, @techatbloomberg

Some Personal Stories

- My interview experience:
  - 2001: 4.5 academic interviews, 2 research lab interviews, 1 govt lab interview; accepted 2 offers; negotiated some for academic position and timing for both
  - 2007: 1 academic and 1 research lab interview; 2 offers; negotiation was “let me think about it”
  - 2013: 3 industry interviews (2 research lab); 2 offers; negotiation was a spreadsheet*
  - 2016: head hunted before going on the job market; negotiation was a spreadsheet*
  - Hiring committees in academia (2006-2007); research lab (2011-2013); hiring manager 2013-2016
- Lessons:
  - Interviewing starts early: Be prepared
  - Practice makes perfect: Interview broadly
  - **Tune your application and interview materials to the company and role**

Outline

- Why industry?
- Applying for industry positions
- Preparing for interviews
- Arriving and At the interview
- After the interview
- Negotiating a job offer
- After you accept

(PhD) Why Industry?

- More data and good infrastructure
- Collaborative teams
- Ownership of product and technical innovations
- You are not limited, can move back and forth *if you keep publishing*

Applying for Positions

- What type of position do you want?
  - (PhD) research scientist in research lab?
  - Established tech company; established non-tech company; startup
  - Research engineer, engineer, designer, product manager, technical writer, sales person….
  - What part of the country/world do you want to live in?
- What level of role are you looking for?
  - New MS: IC3++; PhD: IC4++
- How do you find job openings?
  - Professional network
  - Company website
  - LinkedIn
  - CRA https://cra.org/ads/ (tend to be more research)
- What do you need to apply?
  - Written materials: A CV or resume *tuned to the position;* (PhD) Sometimes a research statement
  - A website or other public online profile (LinkedIn, github, Google scholar)
  - Other materials: Interview prep; Sometimes a job talk
  - A list of recommenders

Preparing for Engineering Interviews

- General prep
  - Practice algorithm and coding interview questions
    - McDowell, *Cracking the Coding Interview*
    - Aziz, Lee, Prakash, *Elements of Programming Interviews: The Insiders' Guide*
    - HackerRank and similar
  - Practice general interview questions
  - Print out some copies of your cv/resume, *tuned to the company/role*
  - (PhD) Practice a job talk, *and tune it to the company/role*
- Company specific prep – *do your research*
  - Know the company – what is their mission? What is their main product?
  - Know the people - who works there? What do they work on?
  - Know the role – what is required? What do you bring to the table?
  - Company will often send interview prep materials

Interviewing Starts Before the Interview

- Campus recruiting events
- Tech meetups
- Conferences
- Your online presence

- Every conversation you have with someone in a hiring-related role at a company, they are considering whether to recommend you for a job – give your name, LinkedIn and/or website to a recruiter
- Internships are extended interviews

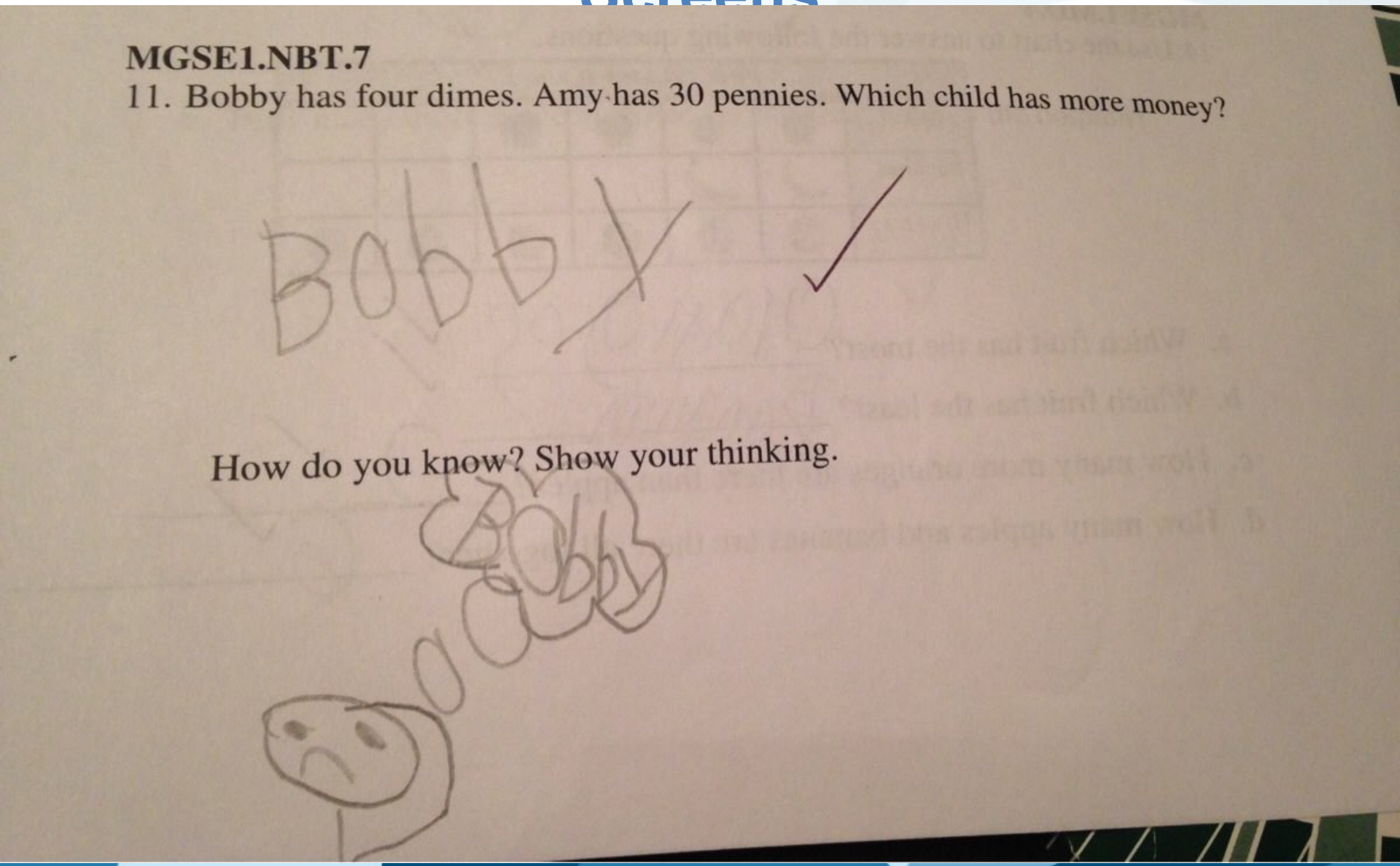
Interviewing: Your Points of Contact

- Their recruiter will be your primary official point of contact
- If you have questions, ask the recruiter
  - *Can you give me an overview of the interview process?*
  - *Who will I be meeting with?*
  - *Can you give me an idea of the timeline for decisions?*
  - *I have other interviews/offers…*
  - *Will I need to give a research talk? How long? What audience?*
  - *What should I wear?*
- The recruiter may ask you questions
  - In an increasing number of states/cities, they *cannot* outright ask for previous salary/comp and you don't have to tell them
  - You *do not* have to answer any questions about family/children/religion – these are generally illegal
- The hiring manager/hiring committee chair may be a point of contact at a research lab
- Your friends at the company may be informal points of contact

Interviewing is Jointly Managed

- The interviewers have goals; you have goals
- The interviewers should demonstrate good time management; you should demonstrate good time management
- The interviewers are “buying” and “selling”; you are “buying” and “selling”
- The interviewers are communicating their company’s interests and values; you are communicating your interests and values

The Interview Process: The Phone Screens



After the Phone Screens

- Any questions or additional information? Talk with the recruiter
  - *I thought more about question X from Sam, and I wanted to send along this paper I wrote or research project I did*
  - *Sam told me something I wanted to clarify with you*
  - *I'm excited to move forward?*

The Interview Process: The Onsite

- 4-6 sessions
  - Each with one or two interviewers
  - 2-3 will be coding/algorithms/role-specific skills
  - 1-2 will be problem solving/"culture fit"
  - 1 will be with hiring manager
  - 1 will be with HR
- (PhD) You may be asked to give a 30 m-1 hour job talk
- You should be flexible with time as they may not tell you when the interview will end
- You may never have contact info for your interviewers - But you can ask the recruiter ahead of time, and look them up

Good Technical Interview Questions

- Good technical questions will
  - Be role-relevant
  - Have multiple possible solutions
  - Be extensible
  - Be solvable in 10-20 minutes
  - Be general wrt programming language, application
  - Cover multiple competencies: design, data structures, programming, (ethics…)
- You will often not be sure if you “passed”
- You should practice thinking out loud
- Feel free to ask questions, take notes
- Manage the time

The Interview Process: The Onsite (cont.)

- They want to understand:
  - Are you a good fit for this role?
    - Core CS/engineering skills
    - Role related skills
  - Would you be a good collaborator?
    - Do you communicate clearly?
    - Do you show capability to be a team player?
    - Are you well organized?
    - Do you show leadership potential?
  - Are you interested in them?
    - Have you looked up the company, its mission and main products?
    - Have you looked up the people?
- **The bottom line - Can you communicate the value you would bring to this job, team and firm?**

The Interview Process: The Onsite (cont.)

- You want to understand:
  - What kind of role is this going to be?
    - If a job talk, more research
    - If more coding interviews, more engineering
  - What would I be doing, and with whom?
    - *What kind of new hire training is there?*
    - *What does a typical day look like?*
    - *Does the company provide internal training and career development?*
    - *How big is the team? What is the primary product?*
    - *What is the customer base?*
    - *Can I continue my external activities? Publishing, open source?*
  - What is the work environment like?
    - Work/life balance: Work from home? Flex time? Pager? Weekend / night work?
    - Big benefits: health insurance, retirement, FSA/child care, deferred comp/bonuses…
    - Smaller benefits: meals, education reimbursement, travel, professional memberships…
- **What is your bottom line?**

After the Onsite

- Any questions or additional information? Talk with the recruiter (or the hiring manager)
  - *Please pass on my thanks to my interviewers, especially Xu and Wei*
  - *I promised Xu my recent paper on X; here it is*
  - *I had a follow up question about the benefits information you shared with me…*
  - *I wanted to let you know that I have a bunch of interviews in the next few weeks/an offer from…*
  - *I am excited to move forward? What is the timeline for decision making?*

The Good, Bad and Ugly

- A good interview process:
  - Interviewers will be trained
  - Interviewers will prebrief, deciding who will be responsible for which interview types and content
  - Interviewers will have an objective rubric against which to evaluate you
  - Interviewers will promptly debrief and make decisions
- A bad interview process:
  - Disorganized, repetitive
  - A focus on “culture fit”
- An ugly interview process:
  - If you are asked clearly illegal or unsuitable interview questions or subjected to other poor interview behavior (invitations to drinks alone, etc) report to the recruiter that day, before you leave, *in writing*

If No Offer Arrives

- Hiring is a noisy semi-random process
  - You can always apply to other jobs at this firm, now or in the future
- This is a tremendous learning opportunity
  - Ask the recruiter for some input into how the interview could have gone better, what strengths and areas for improvement the interviewers noted
  - Leave the door open for the future (you will change, they will change)

When an Offer Arrives

- Don’t say yes right away! *A pause is a very valuable thing*
- Read the offer carefully
  - It should cover: title/role/level, salary, bonus, deferred comp, health insurance, retirement, benefits, vacation and sick leave
  - If there is a non-compete it should say
  - There will be a 2 week clock which you may be able to extend
- Ask questions
  - You can ask questions of your advisor, lab mates, the recruiter or the hiring manager
  - You can look at: GlassDoor, LinkedIn, reddit…
  - You *can* negotiate salary, role and level; having multiple offers is a *huge* help here
    - Levy, Mohamed, *How to Negotiate Your First Job: 8 Steps that will create value for you and your new employer*
- If you have other jobs you are really interested in, contact them and let them know you have an offer

That Spreadsheet

Benefit	Current Job	Firm A	Firm B
Title and level			
Salary (differential)			
Bonus (starting; annual target; annual hit rate)			
Deferred comp (shares, RSUs)			
Health insurance			
Retirement and match			
Childcare benefits			
Vacation time; sick leave time			
Flex time? Work from home?			
Conferences? Career development?			
People I want to work with?			
A company mission I love?			
Others (relocation? location? access to library? Encourages publishing? Education benefits?)			

When you Accept an Offer

- Inform any other firms asap, professionally and leaving the door open for the future Clarify all bureaucratic details and timing with the offer you accept
  - Ask about start date, how relocation is handled
  - Ask for a second visit to get grounded
- You will hear from your hiring manager and team mates; tell them how happy you are to be joining them
- Get your degree!!

References

- McDowell, *Cracking the Coding Interview*
- Aziz, Lee, Prakash, *Elements of Programming Interviews: The Insiders' Guide*
- Levy, Mohamed, *How to Negotiate Your First Job: 8 Steps that will create value for you and your new employer*
- HackerRank, InterviewBits, CodeFights…
- http://cra.org/jobs
- http://www.pgbovine.net/academia-industry-junior-employee.htm
- https://hired.com/wage-inequality-report
- https://thenextweb.com/dd/2018/03/01/exclusive-research-shows-many-women-developers-stuck-junior-level-roles/

THANKS! AND QUESTIONS?