Interviewing During a Tight Job Market

contributions by Qiong Luo and Zachary G. Ives

The following collection of articles aims to provide a sequel to Ugur Cetintemel's December 2001 interviewing advice article, with specific tips for times when the economy is in recession. The contributions are based on the personal experience of recent database graduates who were on the job market in the 2001-2002 season.

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I applied and interviewed for an assistant professor position at a few research-oriented universities in Canada, Hong Kong, Singapore and the US during the 2001-02 academic year. Ugur Cetintemel's article in the Career Forum Column of the December 2001 issue of SIGMOD Record was very helpful to my job search, even though the job market has changed much since then. The following are some tips from my personal experience that I would like to share with the future PhD graduates who will seek an academic position in a research university in Asia or North America.

Get your dissertation (almost) done before interviews. It certainly gives you a large degree of relief on your mind. It also helps you to prepare for your interview process, because you have put final thoughts in summarizing your thesis research, done a fair amount of writing for your dissertation, and practiced several times for your defense talk. Finally, the simple fact that you have finished impresses your prospective employers.

Go to conferences, especially during your interview season. One of the important tasks is to track down people from the institutions in which you are interested. The professors will review (or reviewed) your files, and might tell you upfront what your chances are. The students will give you a feel about what their department is like, and sometimes they know or even participate in the hiring in their department.

Reach out to your professional network. I find it very helpful to talk to my peers in the department to exchange job search information and support one another. People who have recently graduated can share their sample job search documents with you, and can give you feedback about yours. I find it also very useful to learn the perspectives of those senior researchers about my career choices. In addition, alumni are always a great resource. You can ask them about hiring at their organizations, keep them updated about your status, and sometimes get invitations for a practice talk.

Maintain a small number of reference letter writers. Do not ask more than four references. It is better to have one or two letters that give detailed recommendations about you than to have several letters that do not say much. Furthermore, your references are busy professionals, and some are more organized than the others are. It would not be surprising if occasionally they delayed sending the letters, sent your letters to some schools others were applying for, or sent others' letters to the schools you were applying for. It is your responsibility to make sure that they send correct letters to correct places in time.

Be practical about your job search package. Most schools are applied on-line; therefore, there is no need to prepare fancy paper or mailing labels any more. Instead, keep your professional web pages up to date, because some search committee members will look up your information there. Keep your research statement succinct; some committee members outside of your area favor one-page research statements. If you have a name like mine, add some clue (like ”Joan”) for their convenience in addressing you.

Select your schools with a clear focus. Think of where you would like to end up working and living for a long term. Take into account your career preferences as well as family issues and geographical preferences. Check with your advisor and other reference letter writers about what they think. It is unnecessary to apply for too many schools; however, in a year with a depressing job market, it would be a bad idea to apply for less than ten places. The most important point is to focus - apply for a range of places that all seem possible. The more focused you are, the stronger the letters your references feel comfortable writing.

Keep a close eye on your application. In the past year, it was unsurprising that there were hundreds of applications for one available position. It is an overwhelming task for the administrative staff to keep track of all applications. Some departments do not consider your application until all of your materials including all of your reference letters have arrived. It is your responsibility to make sure that your application is given timely consideration. Some departments are more efficient than others in handling inquiries. It is a good idea to find a personal contact in the department to help you with this matter.

Enjoy your interviews. No matter what the outcome is, it is a great learning opportunity to visit a department and meet the people there. Keep your job talk accessible to a general Computer Science audience, because people like to understand your talk. Also, leave something for discussion topics with your area experts. Questions during your talk are another opportunity for you to clarify and strengthen your talk, and to show your ability as a teacher. Individual meetings, in my opinion, are more challenging than giving a job talk. Be prepared for questions about your vision, your tenure strategy, and maybe your Career Award proposal! Be sure to ask about your interviewer's research and try your best to relate. When you get back, use the feedback to revise your talk and to improve your next interviews.

Keep in mind that Asian schools are slightly different. Because of the long geographical distance, Asian universities are very selective in inviting candidates from the North America for interviews. As an example, the Department of Computer Science at Hong Kong University of Science and Technology interviewed four candidates out of hundreds of applicants in the past year. Normally there are no second visits for the candidates who are considering an offer. The offers are usually three-year contracts and there is no negotiation room for startup packages. Salaries are on standard scales, and paid on a twelve-month basis. Teaching loads vary from schools to schools; some schools have large classes (500 students per class) while others have similar class sizes to US universities.

Seek advice judiciously. Job markets change from year to year. Different universities have different culture. Different people give different advice. Some suggestions last over time and some are more time-dependent. Be sure to learn from previous tips, but whenever in doubt, be yourself and follow your heart. After all, you yourself will go on to the job and be responsible for your own career.

Biography

Qiong Luo joined the Department of Computer Science at the Hong Kong University of Science and Technology (HKUST) as an assistant professor in August 2002. She received her Ph.D. in Computer Sciences from the University of Wisconsin-Madison in May 2002. Her thesis research was on caching for web-based database applications. Her current research interests are on database systems, with a focus on query processing techniques for Internet applications.

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When I was preparing to enter the academic interview circuit in Fall 2001, the process initially seemed rather daunting, especially given the poor economic conditions — but I soon found that my concerns were mostly unfounded. Fortunately, I had been given great advice throughout my graduate studies at the University of Washington by my fellow graduate students and professors, and this helped immeasurably: early preparation for your future career makes a tremendous difference. Also, you will quickly find the interview process to be fun and exciting, rather than tense and stressful.

In this article, I try to highlight some of the lessons I learned (either through others' or my own experience). My goal is not to provide a comprehensive guide to the job search process, but rather to complement the tips in articles by Ugur Cetintemel (in the December 2001 issue of SIGMOD Record) and by Qiong Luo (in this issue). I focus primarily on academic interviews, because I only interviewed at universities, but in the Appendix below I pass along some tips from my fellow graduates about the industry experience.

1 Preparation Begins Early

One of the most important things to keep in mind as a graduate student is that your number one priority should be building the skills and connections you will need for your future career — and this involves more than simply doing research or teaching. First, you should work on your presentation and communications skills. One way of developing these skills is to participate in department seminars and reading groups, both leading and participating in discussions (I probably gave at least 30 paper presentations in my time at UW). Obviously, conference presentations are one of the most important places to gain visibility and hone your presentation (and question-answering) skills.

Attaining visibility is important: the better your reputation, the better your chances of getting an interview. At minimum, you want to be visible within your department, because the faculty often promote their top graduate students to others in the community. Obviously, you want to impress your advisor with your research, but other things to do may include department service (e.g., student recruiting) or even doing an exemplary job at teaching[1]. If you can also achieve visibility in the general research community, that's even better. Naturally, research presentations are probably the best forum for letting people know about you and your work, but meeting people at conferences is also important. In my experience, there is often a natural tendency to cluster in familiar groups when visiting a conference — but it is important to expand past this comfort zone and meet new people whenever you can. It's much more fun to show up to conferences and actually know people, and it is also nice to have a few familiar faces (and inside sources!) at the places where you ultimately interview. A great source of further ideas for "networking" is the paper "Networking on the Network" [1] by Phil Agre.

I believe that it's extremely beneficial to do an internship at one of the major research labs. Not only does this allow you to assess how you like industrial research, but it builds many connections and exposes you to different ideas. If all goes well, your internship mentor will be a potential source of one of your recommendation letters. You will also get to know students from other universities, and find out something about other universities' environments. These connections often come in handy when you are at the next conference — you can tag along with familiar people and get introduced to an ever-expanding circle of people. I did an internship at IBM Almaden, and found that it helped broaden my research perspective *and* gave me many important contacts.

As you get closer to graduation, there are two things to do. First, make an effort to spread the word to potential employers (either personally or through your advisor) that you will be finishing soon. Second, start honing your one-on-one and group discussion skills. As people in related fields visit your university, sign up to talk with them. Go to fac-

[1] Note that having teaching experience is a plus when you apply for an academic position, but reputation, reference letters, and research track record are critical.

ulty interview talks for people both inside *and* outside your field, and also to student meetings with the candidates. Learn what are good questions and good answers. Soon you will be at the other side of the table, and it helps to be comfortable in this type of discussion.

2 Applications

The application process is very time-consuming and initially quite daunting: you will be in mostly unfamiliar territory. The first question is where you should apply. You should be able to ask your advisor and perhaps your internship mentor for an honest assessment of the caliber of schools or labs to which you should apply. With that in hand, you can start looking through various sources — US News' rankings, the CRA jobs list (`www.cra.org`), the dbjobs web site (`www.dbjobs.org`), and department web sites — to see which departments are interviewing. (This year, most schools seemed to be hiring, albeit in reduced numbers due to funding cut-backs.)

Choose mostly from the schools or labs in your target range, but add a few "fliers" and a few "backups." You choice of schools should depend on your career goals, your personality, and your style of work. There are many potential trade-offs to weigh: for instance, more elite schools often have a more difficult path to tenure, but they provide more resources and get better students; it is easier to join a department that is strong in your area, but you will have to work harder to differentiate yourself from existing faculty. In general, though, at this stage it is best to not be too selective: applications are generally inexpensive and easy to send out, so you should err on the side of too many rather than too few applications. This is especially true in a tight job market, as you will be facing more competition for fewer slots. I was advised to get my applications out by early to mid-December, because interview decisions are made in several waves and slots fill up quickly.

An experiment we tried at the University of Washington was to form a "graduating job hunters" group consisting of everyone earning a Ph.D. who was interviewing this year. We peer-reviewed research and teaching statements and CVs, shared information about interview experiences, and provided a venue for airing frustrations or questions. Most of us found this group to be valuable, and I would recommend the approach. Following an established department practice, we also held a "what's hot in CS" seminar — a day-long seminar in which students from the major CS fields gave brief presentations about the hot topics in their fields — to catch us up on the interesting research concepts outside our areas.

Your research statement and job talk are very different in nature from any technical publications or presentations you will have made to this point. Specifically, they target a general computer science audience, not specialists in your area, and their goal is not so much to convey knowledge as to establish that: (1) you are working on interesting and relevant problems, (2) you have addressed the problems in an innovative way, (3) you are creative and intelligent, with great potential, and (4) you have a future vision that is exciting and worthwhile. Craft your research statement with that in mind.

Put significant thought into your ideas for the future: be sure you can answer the question, "Given unlimited resources and students, what would you work on?" Your research agenda should be broad and speculative enough that you don't know precisely how it'll be done, but you also should have ideas about tackling the problems, and you must be able to justify why you are qualified to follow this line of work. Try to have both your advisor and someone outside your field comment on your research and teaching statements.

Your recommendation letters are at least as important as your statements and CV. Ideal letter writers will be established names in computer science who know you well and who are impressed with you (and most importantly, with your research skills and potential). Obviously, it is often difficult to find many people who fall into this category, so your next best option is a letter writer who knows you well enough to be able to say concrete things about you. Good candidates are people for whom you've done research, an internship, or a teaching assistantship.

Once your application is complete and you have a list of references, you're ready to begin applying.

If your advisor knows someone in the department to which you are applying, you might ask him or her to send them a "heads-up" about the application and promoting you as a candidate.

Now it is time to create and refine your job talk. As with the research statement, it must justify your work and solutions, and it needs to excite the audience about your potential and your research vision. It should be well-structured with a clear roadmap and signposts (in case an audience member zones out for a few minutes). Open by targeting the general audience; towards the end, you can get more detailed (and more difficult to follow for non-specialists). Practice your talk several times before your first interview, and have people from outside your field come and give you comments. Be sure they look for annoying mannerisms in your presentation as well as the content: problems with delivery, odd mannerisms, etc. Many people find that videotaping themselves (and suffering through watching the tapes) is helpful.

3 Interviews

Scheduling interviews can be tricky — you will typically receive calls in a suboptimal order, and most places will have significant scheduling constraints. If possible, you want to avoid going much beyond a dozen interviews. It's best if you can keep the interviews relatively clustered together — if you get an offer from an early interviewer, they may not want to wait three months for a response — but you also want to avoid more than two interviews in a week.

Before you hit the road, prepare a 1 minute, 5 minute, and 15 minute summary of your work. You'll need each of these many times during your one-on-one interviews. Likewise, have a brief and slightly longer version of your future work description. Bring a bottle of water and a laser pointer to each place; most places will provide these, but occasionally they'll forget. Nowadays you shouldn't need hardcopies of slides, but I was always careful to have backup copies of my PowerPoint slides on a CD-R and the Web.

Be prepared to be surprised by places: some will be much nicer than you expect, and others somewhat disappointing. Similarly, the same job talk and interview style will go better at some places than others — don't let this get you down. A school's reputation doesn't always match its reality, and sometimes it is simply a case where personalities don't click.

Some people seem to give little regard to student meetings, but I think they are a very important aspect of the interview. First, you get to assess your potential advisees, and second, student meetings are the chance to get the inside scoop on a department. Have a general list of questions in mind for this interview, but don't rush it. Usually these meetings begin with a round of introductions in which each student describes his or her work. Show interest in what students are doing; feel free to ask a few questions of each student.

Throughout the interviews, you'll meet many great people and learn about a lot of different and interesting things. Ask plenty of questions and show an interest in what people do. Try to build bridges and connections with other people's work. Enjoy yourself, and try to stay interested and enthusiastic. (Never be falsely enthusiastic, but don't be afraid to get coffee every so often – people understand it's a long day!)

4 The End-Game

Hopefully, at some point while you are still interviewing, you will get your first offer. This comes as a great relief and alleviates some pressure, because you know you will be employed. However, you'll soon find that in getting an offer, you will also get a deadline for your response. Such deadlines are usually relatively soft, assuming you give a reasonable and honest answer for why you need a bit more time. Also, some places will call you and try to get a feel for whether you'll likely accept before they give you an offer. It is my belief that the best policy is to be honest: if they're in the running for consideration, tell them this, but if not, let them know at the earliest opportunity.

Schools will have priorities in hiring, especially if they have few hiring slots available; sometimes those will override their sense of how good you are. Don't be discouraged if you had a good interview but don't get an offer. Eventually, you will hopefully have a set of choices, and most likely they will all have strong selling points. Now it comes down to weighing the different offers and situations. Salary is typically relatively consistent across universities, but start-up packages and department cultures are likely to differ substantially. Be aware that the actual dollar amounts of startup packages are often not directly comparable: at some places the funding is discretionary, and in other places it is be dedicated to something particular such as equipment. Sometimes RA funding is included in the amount; other times, it is provided additionally. Most top-tier research universities tend to offer two years of summer salary and two RAs for two years. If you are trying to assess how reasonable your offers are, last year's offers are a good baseline, as salaries seldom decrease from year to year, even under different economic conditions.

Choosing among your options can be very challenging. I had comparable offers from several universities that I liked, and each of which had people who would be fun collaborators. Eventually, I made my decision on the basis of how I felt I would fit into the department and its culture. My ultimate choice, the University of Pennsylvania, impressed me as being the most enthusiastic about how my future work might be at the heart of many collaborative projects. Of course, the other schools had their advantages as well, so it ultimately came down to a matter of which good alternative seemed most comfortable.

Obviously, the task of declining an offer is also a difficult one. Typically you build a personal connection with your host, and you know that they will be disappointed with the outcome. However, they will understand your decision, and I think it is always worth pointing out the things you liked about them (after all, most likely you're choosing from good alternatives, rather than bad ones!). Of course, this is not the end, either: your hosts will also be colleagues in the research community for years to come, and perhaps even potential employers of *your* future students!

Appendix: Industry Interviews

My personal experience was strictly with interviewing in academia, but I have several colleagues who interviewed solely for industry jobs. Hence I include a few tips about this process, courtesy of Corin Anderson and Matthai Philipose. In general, nearly all of the tips mentioned above still hold for industry positions.

One obvious difference is, of course, that teaching experience is somewhat less relevant in this context, though it still is good as a way of demonstrating that you communicate well. Less obvious is the fact that research labs tend to have highly specialized missions. Be sure to know the focus of each research lab, and be able to tailor your presentation and interviews to explain how your work relates to their mission. Emphasize how your skill set complements but does not duplicate existing talent. Be careful to stay consistent with your message to different interviewers at the same place, though, since they will compare notes at the end!

Your track record and your ideas for future work are as critical in a research lab context as they are in academia. Research labs look at publications, vision, and enthusiasm as a way of assessing your future potential. Especially in a tight job market, it is important to do well in this regard.

Finally, doing an internship is a fantastic way to get an inside track at a research lab in which you are interested. First, you become more of a "known quantity" once you've spent a summer (or a semester) at a lab, and labs often use internships as a way of assessing potential future employees. Second, you will have the inside scoop, as well as a welcoming face, at the lab. Finally, your internship contacts can be advocates on your behalf during the decision about whether to give you an offer.

The economic conditions were rather depressed this year, especially in industry, but the good news is that people *are* hiring. With good preparation and a bit of persistence, you are indeed likely to find a good job out there.

Acknowledgments

Special thanks to Corin Anderson, AnHai Doan, Robert Grimm, Michael Noth, Kurt Partridge, Matthai Philipose, and Rachel Pottinger for their helpful comments and suggestions.

Biography

Zachary Ives has just completed his Ph.D. at the University of Washington and will be starting as an Assistant Professor at the University of Pennsylvania in January, 2003. His research interests are in the area of querying and managing heterogeneous data, and his thesis focused on developing novel adaptive query processing techniques for XML-based data integration.

References

[1] Phil Agre. Networking on the network. http://dlis.gseis.ucla.edu/people/pagre/network.html, 8 June 2002.