My OR/MS Academic Job Search: A Reflection

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I went on the OR/MS academic job market in the Fall of 2022. This document is a reflection of my experiences and lessons learned, along with some advice that I hope will be useful to future job market candidates[1]. Everything here is my opinion and mine alone. Several others in the OR/MS community have written similar documents that are fantastic and were very useful to me during my own job search[2].

1 Getting Ready

Around August 2022, I started actively preparing for the job market. This means that I started thinking seriously about what I would write in my research and teaching statements, as well as what I would present in my job talk. I have heard of candidates getting ready in early summer. I personally don't think this is necessary, especially if you plan to drop all research and teaching to focus on these documents for a few weeks. It helps a lot if you have thought broadly about these things throughout the later stages of your PhD.

A key challenge for me was that I came from a traditional engineering department, but wanted to be competitive at both engineering and business schools. Like many PhD students trained in an engineering department, I had almost zero exposure with all things business school related. I knew broadly the expectations at business schools – quality over quantity in publications, less expectations to apply for grants, more emphasis on teaching – but not much more beyond that (e.g., what is the general flavor of research?)[3]. To prepare, I reached out and spoke to many business school professors within my university and also those who were acquaintances of people I knew. I found it especially helpful to talk to junior faculty who had also made the transition from engineering to business. I also sat in on an MBA class, and went to operations management seminars (at Rotman).

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[1] I plan to keep this a living document that I will add to whenever I find the time. The latest version will be on my website ianyzhu.com.

[2] There are two that I read religiously during my job search: Nikhil Garg's Operations Job Market Advice (https://gargnikhil.com/Blog/) and Kira Goldner's Job Market Blog Part I-III (https://www.kiragoldner.com/blog/index.html). Only later did I find Philip Zhang's rich discussion on the OM market (https://rphilipzhang.github.io/rphilipzhang/miscellaneous.html).

[3] Funny enough, I found out during the job search that many business school students faced the opposite problem when applying to engineering departments (e.g., trying to figure out how engineering grants worked).

I wrote a single research statement that I used for all schools. I strongly believe, with few exceptions, that a well-polished statement should be sufficient everywhere. I have seen some candidates add additional content about funding when applying to engineering schools. I did not do that, and submitted the exact same research statement for all schools[4].

I spent most of my time trying to formulate a single coherent narrative that would tie all my projects and papers together. I also thought deeply about future research directions. I was told by more senior faculty that while people will be interested in what you've done, they may be even more eager to hear what you will do in the next five years after you are hired. Now that I'm on the other side, I agree.

At most institutions, you have complete flexibility over what kind of research you do, which is why a single research statement will suffice. Teaching is a different story, and it may be more constrained by the specific institution. For example, some schools may not have an undergraduate program, while others may not have a PhD program. I had a "master version" of a teaching statement where I wrote about my teaching interests at every level (i.e., undergraduate, Masters, MBA and PhD). Then, I would simply remove sentences as necessary to tailor to the institution that I was applying to. It also helps to identify a few broad/popular courses that you can teach (e.g., Business Analytics), as well as specialized courses that reflects your expertise in a subject (e.g., Integer Optimization, Transportation Systems, Sustainable OM...), and edit as necessary based on the institution.

I sent drafts of these statements to friends and iterated over them about 5-10 times. During the first few iterations, I rewrote entire paragraphs. Later on, I found that repeatedly polishing these statements also helped me prepare for interviews[5]. Most institutions that gave me a first round interview had at least skimmed through my statements. There were several cases where it was clear that the interviewer had read the statements closely, as they brought up specific details from these statements during our conversations.

If you haven't done so already, you need to become visible online. Make a public academic website and start posting your information online (e.g., CV, details of your INFORMS talks). Make sure your LinkedIn and Google Scholar page are up to date. In this day and age, I think that having no online presence can hurt you. For example, it was clear that almost everyone that gave me a first round interview had been on my website or LinkedIn profile, since they were easily able to recognize me in-person at the INFORMS conference.

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[4]But either way, be ready to answer grant-related questions later in the interview process (if you are applying to engineering schools).

[5]During interviews, it's not always about whether you can give the perfect answer for a question, but whether you can think of a good one within a few seconds of hearing the question. Rereading these statements helps you remember the main points you may want to say.

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2 First-Round Interviews

Almost all my first-round interviews were conducted at the annual INFORMS conference. These interviews were typically with two faculty members (usually one junior and one senior). Some schools had a very structured meeting agenda, with a common set of questions that they asked every candidate. Others were more relaxed, feeling just like a coffee chat. Regardless of the format, the types of questions were similar: what are your research interests, can you tell me about one particular paper that you worked on and what the main contributions were, what are your teaching interests, why are you interested in our department, how can you contribute to the community here...etc.

Before my interviews, I put a lot of time practicing my "elevator pitch", that is, a summary of my main research interests in a few sentences. Almost all interviews will start with something like "can you tell me a bit about your research?". You want to give a short and succinct answer, but one that hopefully also encourages some questions. Ideally, you want this interaction to feel like a natural conversation rather than a presentation of some long script that you've memorized. For example, I typically said something like "my main interests lie in the design of data-driven algorithms to understand and improve decision making. I've spent a lot of time working on inverse optimization, which is about ... [2-3 sentences]. I've also worked on more applied problems ... [1-2 sentences]." I tried to exaggerate my pause between a few sentences in case anyone was eager to ask questions. A few professors did stop me to ask something specific (because they already knew my research well), while most waited for me to finish.

The professors that are assigned to interview you may or may not be knowledgeable in your area of research. So be ready to talk about both the big picture and the specific details of your research. I've gotten questions ranging from "what exactly was new in the cutting plane algorithm that you used to solve X" to broad questions like "who will benefit from your research". I also spent a lot of time rehearsing short explanations of the key results in my papers. You want to make sure that you can articulate your research well.

Do a bit of homework for each school. For me, I tried to memorize the names of at least several faculty that I thought I could collaborate with. I skimmed through the courses that the junior faculty taught, and checked whether they had undergraduate, masters, and PhD programs. For engineering schools, I also looked at the grants that people have previously received. But don't feel like you have to know every department in-and-out. Part of the interview process is for the faculty to tell you a bit about themselves. For example, if someone asks what you can teach, you can list out the courses you have in mind, but also ask them if there is a particular teaching need that you could help out with.

Finally, be sure to have questions prepared. All interviews will end with "do you have any questions for us?". This is a time to show that you are really interested in the school. I asked questions about mentorship from senior faculty, grant expectations, the ability to work with PhD students, collaborations, teaching expectations. You should also be mindful of the time (by wearing a watch!). If your interview is scheduled for 30 minutes, and you're already at

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the 29 minute mark, I would not recommend asking a very involved question. At the very least, you could first acknowledge that your meeting is nearing the scheduled end time, and ask if there is time for one more question.

A first-round interview invitation typically implies that the candidate looks good enough on-paper to make it to the first cut. The in-person chat is to make sure that you are as good in-person, meaning that you can speak coherently about your research accomplishments and research agenda, ask good questions, appear interested in the school, and seem personable as a potential colleague. In my experience, I don't think there was a particularly high correlation between first-round performance and fly-out. My sense is that doing terribly in the interview will definitely hurt your chances of receiving a campus visit, but doing very well may not necessarily improve them significantly. Fly-outs are ultimately decided by a committee or a department, whereas you are only interacting with one or two faculty during the first-round interview. So do your best, and don't worry about the minor hiccups.

3   Campus Visits

I got my first fly-out invitation a few weeks after INFORMS, but I have heard of peers getting them within the first week back. Fly-outs are typically one full day. The day will often start at breakfast (my earliest started at 8am) and last until after dinnertime (the latest I got back was 9pm). In between, you will give your job talk and have one-to-one meetings with faculty and students. Every interaction is part of the interview. I typically did not have any major breaks in-between. You are the star of the show, and everyone will want to meet you and talk to you.

3.1   The job talk

You will hear this from everyone: the job talk is by far the most important part of your visit. I believe that it's entirely possible to get an offer by giving an excellent job talk despite a few mediocre one-on-one meetings, but the opposite is less likely (i.e., a mediocre talk coupled with excellent meetings). Make sure your job talk is extremely well-polished. A strong and clear job talk will also lead to better meetings, since most one-on-one meetings will only be scheduled after your talk.

Presenting two papers. For my job talk, I ended up giving a talk on two different papers that were only loosely related. I spent roughly the same amount of time on each paper, which meant my talk was divided into two parts. This is in contrast to a typical job talk, where one spends the first 80-90% of the talk on one paper and then summarizes all other papers and interests in the final few minutes of the talk. The first paper I presented was entirely methodological with no applications, published in a computational journal (INFORMS Journal on Computing). The second was very problem-driven, consisted of several empirical case studies, and was published in a more general-interest journal (Operations Research).

As I was asking around for advice, I heard from numerous faculty members that presenting

two papers could be risky (especially at business schools), since it may not provide enough time to dive into the complexities and nuances of one specific work. I thought about this a lot. However, because of the nature of these two papers, I came to the conclusion that presenting only one would inaccurately portray me to be either as a pure theory person or an application-specific person. But in my mind, I see myself lying right in the middle. So I decided to present both, and thought hard about how to create a coherent job talk that would reflect my ability to do both theoretical and applied research. After many many many iterations, I do believe that the final version of my job talk worked out in my favor. Later, some faculty told me that they knew, even before going into my talk, that the two topics could be messy to present together, but were impressed by my (attempt at) coherent storytelling. With that said, I will still recommend exploring all possible options before trying to present two or more papers with equal emphasis.

How I practiced. I practiced and polished my job talk in a bit of an unorthodox way. In fact, I never gave a complete version of my talk to anyone as practice. Instead, I practiced different 15-20 minute chunks with lots of friends and acquaintances. I spent most of my time trying to perfect the introduction, motivation and general problem setup at the beginning of my talk. My rationale was two-fold: (i) most of the audience may not be experts in your research area, so the introduction is critical for convincing them that you are working on important and interesting research, and (ii) there's no point in practicing the technical results if I've already lost them at the problem setup. I found that the main benefit of practicing in smaller chunks is that the listener is more likely to give very detailed suggestions. For example, I would give the first 15 minutes of my talk to a friend, quickly click through the rest without speaking, and then that friend and I would spend the next 40 minutes discussing how we can fine tune each and every intro slide. I would then practice the technical parts of the talk with a different friend who knows the work well, and they would give detailed suggestions on those. I rehearsed the complete talk only by myself.

Overall, I found that this strategy was quite effective. I wouldn't advise it to everyone, but I'm putting it out there since I haven't heard of many people practicing this way. This works for me because this is the same way that I practice any conference or research talk. I rarely rehearse the whole talk from start to finish. Instead, I tend focus on specific parts that feel choppy and try to iron out the kinks one at a time.

Time management. It's essential to have good time management during your job talk. You don't want to end too early, and you definitely don't want to end late. You also want to make sure that you take as many questions as you can during the talk.

I believe that "buffer slides" are absolutely necessary. These are slides that you can skip over if time is tight, but ones that you can walk through if you have the time. I have heard of various kinds of buffer slides. In my own talk, these were mainly the summary slides following each part of my talk, as well as a teaching slide which acted as the concluding slide of my talk. My rationale for the teaching slide was that in the worst case, I'd just wrap up and say thank you (without having sacrificed any research discussion), and whoever was interested could still look at my teaching slide while I was answering questions.

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At the beginning of each talk, I made sure to emphasize that I prefer to be interrupted by questions during the talk. Personally, I think this is the way to go. Some schools may have a culture of leaving questions until after the talk. My worry was that this meant that there's a chance of someone sitting through my entire talk without understanding it because some simple question they had at the beginning was not addressed (e.g., "remind me what theta stands for?"). So I paused and encouraged questions whenever possible. The benefit of having a two-part job talk was that it was natural for me to break halfway for questions. My own rule-of-thumb was that I'd try to answer all questions that were critical for appreciating my work on the spot (e.g., "why are you using this model?"), but when time was tight, I would suggest discussing more curiosity-based questions offline (e.g., "have you ever thought about whether you can extend this result to X").

3.2 One-on-one meetings

I carried a notebook in my backpack throughout my campus visit. Before the visit, I wrote down the names of every single faculty member that I would be meeting and took a few brief notes on them in my notebook. Some of these were notes to help me remember the type of research they do (especially those who were not in my area), whereas other notes were specific questions that I wanted to ask. Typically, I walked around with this notebook in my hand to each meeting, but only flipped it open if I really needed to.

In general, the style of the meetings varied dramatically between different professors. Some were serious, where a professor really wanted to ask me questions, typically those that they didn't get a chance to ask during my job talk. These might be intense, but you should think of it positively: they are interested. There were also meetings that were very relaxed, where the faculty member would ask me what my hobbies were and what kind of food I liked to eat. I believe that they knew I had a long day and were giving me room to breathe; I cherished these meetings. Finally, some meetings will start with a professor asking "do you have any questions for me?". This is where your list of questions might come in handy.

3.3 Miscellaneous

During my first campus visit, I was tense and nervous for every meeting, for my job talk, during each meal. Once I got home, I felt completely exhausted. Thankfully, my endurance and stamina grew exponentially over the next few visits. By the last one, I felt that I could do it all over again the very next day. I have heard this same story from many friends.

I would recommend taking at least one full day to recover after each visit. Each time I got back home, I would spend 24 hours doing nothing but sleeping, binge watching TV and listening to music. I generally didn't have the energy to go out with friends. But this ritual helped me recover and get ready for the next visit.

Your first fly-out may not go as smooth as you'd hope. Mine didn't, and neither did those of most people I know. After all, none of us had experienced anything quite like this. There may be obvious questions that throw you off guard, things that you just forgot to say. I have

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heard that people tend to perform at their best around the third or fourth fly-out. I have also heard that it may be hard to maintain the same level of enthusiasm after you've given the same talk many times and/or had the same kind of research discussions. If you're lucky enough to receive several invitations around the same time, you may want to take this into consideration when scheduling your campus visits.

4   Final Thoughts

It's incredibly important to keep a close eye on your mental health during the job search. During this time, I experienced levels of anxiety that I have yet to fully recover from. For months, I would check my phone constantly to see if there were any new updates. I would (re)play scenarios in my head and second guess everything that I said. I avoided people out of fear that they'd ask me how my job search was going. I slept poorly. Thankfully, I had incredibly supportive family and friends who kept me sane during the process. They gave me space when I needed it, and were always there for me the moment I reached out.

   This is personal, and I have some hesitations about sharing it. But one thing that helped me get by was finding out that I wasn't struggling alone. Once I started opening up about how I was feeling, I realized that almost everyone around me was going through, or had gone through, similar experiences during their own job search. This revelation, in some odd way, kept me moving forward. So, just try your best at rolling the dice, control what you can, let go of what you can't, and be proud of yourself for getting this far.

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