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Job Market Advice

During 2019-2020, I was on the academic job market, primarily for Operations Research and Business School positions. I kept up this document while going through the process, with some mild post-editing.

## Some caveats and high level notes

1. You wouldn't ask a lottery winner what they did to win the lottery, and academic job market success suffers from much of the same selection bias and randomness (and of course, actual bias). I'm speaking from just my own experiences here (and from the experiences of those I sought advice from).
2. Of course, some of the advice (like flyouts and INFORMS related) may differ in Covid-affected markets.
3. Some of the advice listed below is time-consuming, you probably don't want to follow it, and in a perfect world maybe wouldn't have to follow – your job should be to do research, not all the things below. Unfortunately, the job market will demand most of your time, and you most likely won't get much research done during the application process (I was able to spend a few weeks on revisions and conference versions of papers, but that's about it). That being said, I don't know the counter-factual if I didn't spend time doing some of the below things.
4. What is "Operations" (whether in engineering or in business schools) is extremely fluid right now. CS theorists, market design economists, probabalists, machine learners, sociologists, field experimenters – all have successfully applied to operations positions in the last few years. This heterogeneity has a few important implications:
    - It's extremely easy to have imposter syndrome. Each other candidate you meet will be way more accomplished than you in some metric. The goal isn't comparing to everyone else based on what they do, but to be great at what you do, whatever that is. (And to be able to articulate what it is that you do.)
    - There is randomness in the tastes and needs of each department. Some fraction of schools that have postings that you ostensibly qualify for may simply be looking for something else. For example, one school in my year was, according to rumors (that every faculty member seemed to know), exclusively looking for someone who does qualitative research.

5. The market is stressful, even if you're doing well in the number of interviews/flyouts you're getting. It's hard not the take rejections personally. It's important (but hard) to remember that someone not hiring you is not a personal decision, and it's not an indictment on you or your research.
6. It is also an unparalleled opportunity to meet people who will be your colleagues for the foreseeable future, and to find potential collaborators. Don't treat it as *just* a job interview. I went from knowing very few people in the OR/OM community, to knowing a bunch.
7. Some other resources online that I like:
    - https://career.berkeley.edu/PhDs/PhDhiring
    - https://thehardestscience.com/2010/07/14/the-academic-job-interview-a-mishmash-of-small-but-important-things/
    - Operations Academia is trying to centralize job postings and candidate profiles, and you can view profiles from previous years (and add your own – please do! It's better for everyone involved).

## Timeline

### August 2019

1. Several research statement drafts.
2. Finalized job market paper as much as possible (I had received revisions from a journal, and was also adding a new empirical section to the paper).
3. I heard some people had their job talk made/practiced. I had a 20 minute version ready from earlier conferences, but not a full talk.
4. Start organizing schools and their deadlines.

**September 2019**

Finalized all statements and application materials. One school had their INFORMS deadline (by which to submit, to be considered for INFORMS interviews) in late September. Most others had theirs in early October. I treated those as an artificial deadline to get all my materials in, even though schools typically only ask that you submit *something* (e.g., a CV) to express interest before these deadlines.

**October 2019**

1. Finished submitting all my applications before schools' INFORMS deadlines.
2. Prepared for my 2 talks at INFORMS – made sure they're polished.
3. Did practice interviews for INFORMS – about 5, with various professors and those who recently completed the market.
4. INFORMS.

**November 2019**

1. The OR market has completely unraveled – I was invited to my first on-site less than a month after INFORMS, in mid-November. I spent about a week almost full time prepping my job talk (going from a 20 minute INFORMS version to a 1.5 hour version). This included 5 full practices with various audiences.
2. Other flyout prep.
3. Applied to a few post-docs that had deadlines in early December, such as MSR.

**December 2019**

More flyouts, and scheduling invitations to flyouts for January/February. As the month progresses, it's easy to go crazy waiting for flyout invitations, and wondering if some school has sent out invitations yet. I don't have any good advice for avoiding this craziness. If you know others on the market, I guess it's possible to share information, but in my opinion this has limited utility.

**January - February 2020**

Flyouts.

## Advice by stage

### Picking schools to apply to

1. Compile a list of postings.
    - I almost exclusively relied on the INFORMS (and specific societies) forums, each of which sent me a daily email regarding the latest forum threads. Basically every school with openings announced them on the forums.
    - Operations Academia also has a list of job postings.
2. How many schools should you apply to? It's a very personal decision. I applied to about 30. Asking others, I mostly heard numbers in the 30s and 40s, up to the 60s. Someone described to me a strategy of applying for a few select positions one year, and then more broadly the next.
3. Advice from one of my advisors: Categorize schools/openings into three buckets. (1) Would certainly go there, (2) Not sure, (3) Definitely wouldn't. Then apply to everything in the first two buckets. Don't think too hard about the difference between the first two buckets until you get offer(s), because you'll learn a lot about schools and your own preferences during the process. For example, I didn't apply to any schools outside the US, but wasn't restrictive geography-wise within the US.

4. Even if you think a school doesn't do what you do, consider applying – those are exactly the schools that may be considering expanding into your area.

5. If in multiple markets (e.g., Business/OR and CS), take advantage of sequential processes to save yourself time – you will probably start receiving signals regarding how the Business/OR market is going for you before you have work toward the CS market too much, and you may decide come December that you don't want/need to submit more applications.

**Statements**

1. The research statement matters, not only for what it ends up saying (and if anyone reads it) but also because the process of crafting it helps one better articulate a research vision, connecting both past work and future directions. This helps quite a bit in helping answer questions during interviews.

   When writing the statement, you'll have to think through: what connects your work, what do you want to work on in the future, and what is the best 1 paragraph/1 minute pitch for each of your works. These are exactly the things that will be asked of you in interviews.

   My prepared pitches for my general research, and specific works, were basically regurgitations of my research statement. (One professor, during a 1-1 meeting at a flyout, even semi-jokingly said, "I know how to read your research statement, and apparently you know how to read it back to me. What's the next few sentences of your answer?" after I answered a question regarding my research interests too similarly to what I wrote down.)

   If you have good work in a field other than the positions to which you are applying, (e.g., applied machine learning/NLP work in my case), you may be able to work it into the future work section of your research statement, by describing how the relevant skills will help you do unique work in your main research area. That being said, define yourself into one discipline/area of expertise in your statement. Others will do that to you anyway, so you might as well make it easy for them to see you as you see yourself.

2. Writing the research statement should include several drafts and back and forth with advisors and other professors.

3. I submitted near-identical research statements to wherever I applied (OR, business schools, and a few CS places). Basically everyone I talked to thought that writing multiple versions of a research statement or a job talk was a bad idea – that it's not possible to achieve the level of polish needed on multiple statements and talks.

4. My research statement was 3-4 pages long. Teaching and diversity statements (for schools that required it) were about 1 page long.

5. I did have 2 versions of my teaching statement – one for OR/CS and one for business schools. The business version discussed MBA teaching in particular, while the OR/CS one discussed PhD teaching.

**INFORMS**

1. For the OR/business market, INFORMS is the craziest/one of the most important part of the market. You might be giving talk(s), but more importantly, you'll be going through interviews – the equivalent of phone screens – with many schools. (I had about 10-15 interviews).

2. Most schools in their job posting have an "INFORMS deadline" in early October by which to submit if you want to be considered for such an interview. You should target meeting these deadlines. I treated these deadlines as an artificial deadline to get all my materials finished.

3. From what I hear, getting an interview is a good sign, but only *bad* things can happen *during* the interview, i.e., you do not perform well and they don't invite you to an onsite because of it.

4. About the week before INFORMS, you'll start getting emails from schools to schedule the interviews. Most will try to schedule you on the first two days of INFORMS – prepare for a crazy 2 days.

5. Don't worry too much if you don't get an interview with a particular school. Some schools don't conduct interviews, and others do skype chats after INFORMS (I didn't have any of these, but Stanford MS&E does this). Some schools don't do INFORMS interviews for every candidate they are considering. Professors from a few schools introduced themselves to me after my talks, and it was clear they came because I submitted an application. For at least one school, the first time I heard from them was in December when they invited me to fly out.

6. The interviews are all the same – about 20-30 minutes long, with 1-3 faculty members. The questions you'll be asked are also the same:

   - They all start with, "So tell us about your research." You should have about a 2 minute pitch ready here, as most schools will let you talk for about that long without interruption. At the end of my pitch, I briefly described 3 projects, and then let them pick which one(s) they wanted to talk about.

     Someone advised me that I should have a 30 second, 1 minute, 2 minute, 5 minute, and 10 minute pitch ready for my work; that I would never get 10 minutes uninterrupted, but thinking through what I would say would help me identify things I want to highlight in answers to follow-up questions.

   - A small chunk of the interview is going in some level of depth on a paper. At least for me, these weren't technical questions as much as justifying the motivation, importance, and model.

   - Most schools ask what courses you want to teach, both in terms of core courses and if you could design a new class.

   - I am not from a business school, and further, on paper I have no Operations educational background. Every business school asked me if I was willing and capable of teaching MBAs, and if I had any evidence of being effective in that environment. Some asked me if I could teach core operations courses, even though I had no formal operations coursework or teaching experience. If I hadn't had evidence of MS/OR/MSOM journal submissions, I would have been further asked if I was ready for journal submissions instead of CS conference papers.

   - Most schools asked about future work and my agenda for the next 5 years. Have at least a few sentences ready here, with a broad enough/important enough agenda.

   - They all end with, "Do you have any questions for us?." Have a few questions ready.

   - Some other questions I was asked – "Tell me about your favorite recent paper or result," "how are you thinking about the relative merits of business schools vs operations engineering departments?," "Where will you apply for grants/funding?", "Why [this school]?"

   - Interviews can get technical, but only about *your* work. Make sure you know/remember the high level proof ideas of your past work and are comfortable discussing limitations, extensions, alternatives, etc. No one is going to ask you classroom questions/technical questions that don't relate to your work.

7. Some of the interviews will be awkward – a few of mine certainly were. One interviewer asked me an illegal question, which I regret answering. Others were somewhat aggressive in various points regarding research, but I hear that's on purpose to see how you react. If you have a bad interview, you just need to bounce back and get ready for the next one. From your perspective, it's hard to tell if they actually thought it was bad. After each interview I rated out how I thought I did out of ten (factoring in how well a fit I thought the department was overall). There was some but not high correlation between my ratings and whether I was invited to an onsite.

8. I sent follow-up emails to almost everyone with whom I interviewed after INFORMS. Not everyone does so. It was mostly generic, saying I enjoyed the conversation and then highlighting something that I found interesting about the conversation or school in general (I took notes after each of my interviews so I would have something specific to say). From what I've heard, *not* sending emails may be perceived by some schools as a lack of interest, and may prevent you from getting a flyout/offer.

**Flyout advice**

1. If you've been invited to a flyout, then that means they like you on paper and you didn't disappoint at INFORMS. The flyout is about:
   - Are you as good up close in person as you are on paper? Can you give a great talk?
   - Will you make a good colleague? Are you friendly, collaborative, interesting, and someone they want next-door to them for potentially the next 40 years?
   - What's next? Will you do stuff in the coming years that will make them and the school look good? Do you have a great shot at tenure?
2. The flyouts are mostly the same: you give a talk (most schools I was invited to had a 90 minute seminar time; others had 60 minutes), and you meet with a bunch of professors 1-1. There's a dinner with either one or a few professors. You might meet grad students if the department has them.
3. The 1-1s are similar to INFORMs interviews, but with a few differences:
   - They're a lot less structured/formulaic. The interview "archetypes" are:
     - "I have some follow-up questions from your talk"
     - "I have no questions for you. What do you want to talk about?." In general, compared to INFORMS, there will be much more talk of the school, with people telling you about their lives, city, teaching, department, etc. Some will just have you ask them questions regarding the school/position the entire time.
     - Repeat of INFORMS, in talking about a mix of past and future work.
     - "Ok, I attended/will attend your job talk, so tell me about something else you've worked on."
   - Some people will be aggressive and ask sharp questions of you. I was told/asked, among other things: (1) "I thought your talk was under-whelming," and (2) "Why is half of the INFORMS community wasting their time with ride-hailing?" (just after I had given a ride-hailing job market talk). You need to stay calm as much as possible, without being a pushover.
   - The visits are two-way interviews – you should also be trying to figure out if you would be happy and successful at the school and city. Make a list of questions. Ask multiple people the same questions; answers will vary, and how they vary may be informative. Prepare a large list, both specific and generic. The most awkward part of a few of my interviews were when they asked if I had any additional questions (after I already asked a few), and I didn't have anything else. The questions can be school specific (teaching, collaboration, students, etc), but I also just asked people about their research.
4. I sent personalized thank you emails to basically every professor I met at my onsites. Key to this was, in the evening after every visit, writing a few notes about each conversation. Also thank the admins – they put in a lot of work setting things up and making your life easy!
5. I was told – There is a lot of politics that goes on behind the scenes, especially regarding the focus area of a department's search that year. If possible, try to talk to someone you know at the department before you go interview. That'll help you tailor what you emphasize in your job talk and interviews. For example, you may want to bring up a certain paper if that fits in well with their focus – you can't assume that everyone at the department will know all your relevant past work. In one case, someone learned that the department wanted someone with some applied work, and they were able to mention one such paper even though they were a theoretician. My view on this is that it sounds good in theory, but I only did this once (it did turn out to be useful in that case, however...)
6. For each of my visits, I did the following: I copied the schedule onto a google doc. Each person/meeting became a header, with both time and location. This led to a table of contents at the top that I could quickly reference. Then, underneath each header, I put some bio/research information and any specific questions I had for them. I had a shortcut on my phone to this document the day of the visit. Every couple of meetings, I would ask to use the restroom and referred to my document to remind myself of what's coming up. Then at the end of the day I added notes about each meeting, that I could reference when writing thank you emails.
7. As opposed to INFORMS, it was extremely hard to tell from my perspective how a visit went. There are some things I can perceive (did I answer questions well during the talk, how engaged were people, general perceptions of the 1-1s), but there is a lot out of view: (a) what *didn't* I talk about during my

talk that they want, (b) who are the other candidates they flew in, and how did they do (c) what are their main needs/areas of focus in hiring this year, (d) how did they perceive and understand my talk.

**Job talk**

**High level Advice**

1. Probably the most important part of on-sites.
2. The job talk is as much testing your ability to teach and convey information as it is about your research itself. In my opinion, most of the talk should be accessible to people outside of your research area.
3. My talk was, roughly (timed without interruption): 5-7 minutes of an overview of past work, 45 minutes of my job market paper, and then 5 minutes of broader agenda/future work.

**Specific Advice**

1. The seminar times for me varied, from 60-90 minutes. Schools also differ in how many questions people ask. You should be able to flex time in your talk, on the order of 10 minutes in either direction at least. You may also want to emphasize different things for different audiences. I had links at the bottom of many of my slides, taking me to extra material if I had the time:

   - A proof walkthrough for my main result.
   - Extra empirical analysis.
   - More detail on the numerics

   I also knew roughly how much time I would need for later material, and how to flex what I'm saying. I often did not make it to the future work slides, and ended the talk at the end of the job market paper section. For one school, I also cut the first 5-7 minutes overview, because both it was a short talk and I was told they wanted technical detail.

2. Make a list of questions you will be asked, and what the answer is. For common expected questions where additional information/simulations/visualization may be useful, create an appendix slide.

3. Practice the art of answering questions well, and not just preparing written answers. When asked a question, you want to simultaneously answer their question, answer a broader question that they might be thinking of/that looks better for you, and address the entire room. Don't be overly defensive; no research is perfect, covers everything, and suits all tastes – and professors know that. It's sometimes best to recognize limitations and show that you're an academic. Often arguing about limitations will just annoy the person asking the question, without convincing them.

4. The week before my first flyout, I gave 5 full practices to a variety of audiences – every day from Tues - Friday, and then Sunday (I'm lucky to be in a department with extremely generous professors and students.). I made substantial edits to the structure and the slides between each practice. One of the talks was the worst talk I gave in grad school, but it led to ideas that became my final presentation structure. I was rarely surprised with a question that I hadn't heard before and prepared a slide/answer on by the time my actual flyouts rolled around.

5. It was especially useful to give practice talks to people outside my field. Different fields have different languages and ways they ask questions. In one specific instance, I was asked a question during a flyout that (a) was simple to answer in a few words, (b) I would have had no chance of even understanding the question, if I hadn't practiced in front of a friend who did causal inference and who asked me the same question in the same language.

6. As opposed to a regular talk, some of the questions will be trying to ascertain how well you know the broader area and the depth of your findings, and whether you can think on your feet. If you have an empirical component, I was told there is nothing more embarrassing than not knowing basic facts about your dataset, even those only tangentially related to your analysis.

7. If you are a theory person – people want to see that you proved something hard/did something with depth. Have a slide with, e.g., a proof technique or outline that you discuss in some detail. But most of

the talk should be understandable to most people, and don't keep hammering home the difficulty.

8. Professionalism matters. Comb through each slide of your talk and make sure that there are no typos, formatting is consistent, headers and text are parallel, etc.
9. I considered talking about different works at different schools, but was told it was a terrible idea. Someone told me that a school asked them to talk about a specific paper, and so they had to prepare a new talk for that.

**Very specific advice**

1. Most schools will schedule 15-30 minutes before the talk for you to get ready. Don't rely on this time to do anything. This time was spent informally chatting with people or was replaced at the last minute by an extra meeting that couldn't be scheduled at another time.
2. Don't rely on being able to use your own computer (i.e., have your slides in PDF format). At one school, for example, I wasn't able to connect my computer to their system (even through HDMI); at another, somebody was Zooming in. In both cases, I had to use someone else's machine. If you use PowerPoint and animations like I do, this means that you have to separate out your animations into separate slides to mimic the effect, and then print to PDF.

## Miscellaneous

1. I was told to find a "job market buddy" who is also applying to the same types of departments as you, so that you can share deadlines, links, and information. I was also told that a chat group may emerges among those on the market to share information. This didn't happen my year as far I as know.
2. Do whatever you can to not get sick during the process. Get a flu shot, take precautions you might not otherwise on planes, etc.
3. To emphasize what I said above – do what you need to to sustain your mental and physical health. This means continuing your exercise routine and standard diet as much as possible, even when traveling. Being calm and healthy is far more important (and useful) than 30 more minutes of preparation.
4. I was asked many illegal questions throughout the process (ask me privately which ones. . . ). This is not ok. Maybe spend a few minutes thinking about the most common illegal questions you might be asked, and prepare what you're willing to say and not say. I don't have great generalizable advice about what you should do when asked inappropriate questions. (I also recognize that I'm privileged to not have to face the worst of these questions/biases). For those interviewing: don't put candidates in this position.