My Experience with CS/IS PhD Applications (v1.2)

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1 What is this?

I applied to PhD programs in Information Science, Computer Science, Communication, HCI (and other related fields) in 2022 (for the Fall 2023 intake cycle) while finishing my undergraduate degree in Computer Science. While I was successful in my first attempt (got into 50% of the programs I applied to), I've made my fair share of mistakes and inefficiencies which I believe are worth learning from.

This document is a recollection of my experiences, framed as advice. It primarily covers aspects directly related to the application process for PhD programs in IS/HCI in the US and Europe. The exact process may vary significantly across institutes and disciplines, and is not the focus of this article. As with most advice, these are born of my subjective experiences and therefore, take these with a pinch of salt!

Disclaimer: Deadlines, processes etc are bound to change, please do not treat any information here as official - always refer to institute websites and/or other official sources for the latest information. The intention behind drafting this is to share my experiences in the hope that it will help future applicants. The latest version of this document will be on my website. If you have any suggestions or spot any inaccuracies, please write to me at hello@sohamde.in.

1.1 Acknowledgements

Much of the advice here is what I had received when I was applying, from my peers, professors and seniors. In particular, I borrow generously from what Dhruv Agarwal told me when I was applying. I have also tried to link any other resource I found helpful, wherever applicable.

2 Timeline
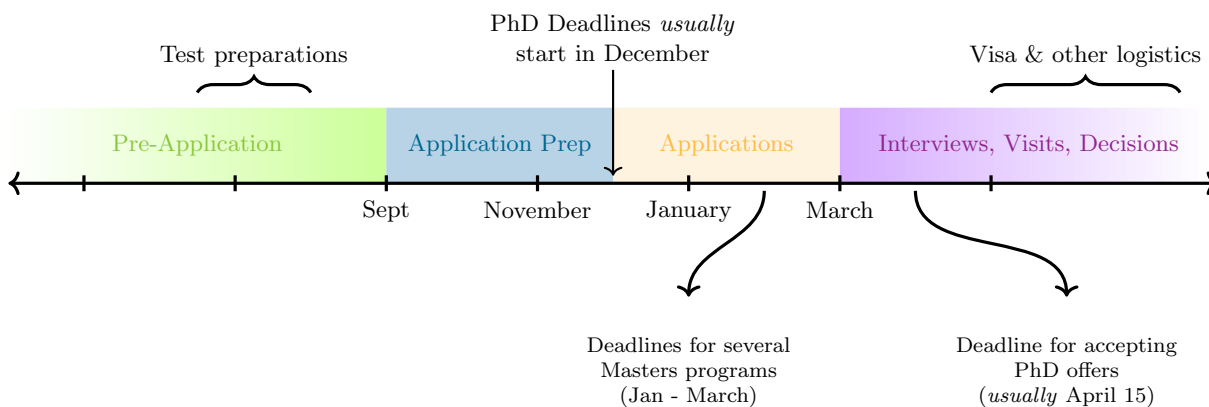
Above is an outline of a rough timeline I followed in 2022 -2023, breaking it into 4 (potentially overlapping) *phases*. It is important to note that there are often exceptions (such as an early-notification PhD deadline in mid-November) which can be easily over-looked in such generic timelines - make sure to note all these carefully when you apply. Further, depending on your writing skills and motivation

levels, you may want to budget more or lesser time for your preparatory phases. In the following sections, I deal with each of these phases separately - I share advice from personal experiences as well as resources and advice from other people, that I found helpful and relevant.

2.1 Pre-Application

Pre-Application	Application Prep	Applications	Interviews, Visits, Decisions

Sept   November   January   March
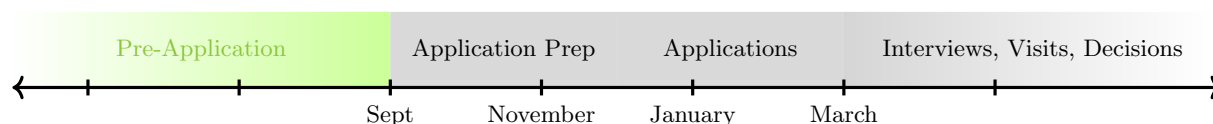
The pre-application phase is when you build your research profile (arguably *the most important part* of your application) and figure out if a PhD is right for you (it is a big commitment with a significant opportunity cost - you need to as sure as you can be). I personally also recommend attempting your tests (GRE, TOEFL, IELTS etc) during this phase to reduce the burden closer to deadlines. This should ideally be your longest phase - gaining research experience and building sustained interest in an area can take years!

- **Build your research portfolio**:
  - **Journal/Conference Publications**: While a PhD is supposed to train you in independent research, it is (perhaps unfortunately) common for strong applications to have several publications (often, at top international venues) before starting their PhD. While this is rarely a strict requirement, even a single first-authored academic publication at a good venue is likely to be a highlight and will go a long way in strengthening your applications.
  - **Other demonstrations of research experiences**: Having access to research support and good mentorship prior to your PhD is often a matter of privilege and not available to all. Hence, if you are unable to get a publication pre-application, do try to demonstrate evidence of your research experience and potential via other means, such as independent projects, posters, reports, articles etc.
  - **Expand your collaboration networks:** Ask yourself if you have enough (typically 3, of which 2 should be professors/researchers) senior, experienced collaborators or mentors, who can write you a strong letter of recommendation. If not yet, then actively seek opportunities to collaborate with more people/ join a new research lab etc. Do this early - collaborations take time, especially if you want it to result in good recommendations.

- **Answer the tough questions:**
  - **Why a PhD?** Have this answer handy - you'll need this when you write your SOP and every time you question your life-decisions.
    * Casey Fiesler's YouTube video illustrates good and bad reasons to pursue a PhD
    * Matt Might's Illustrated Guide paints a simple, yet accurate portrait of a PhD program
  - **What kind of a researcher do you want to be?** Hopefully by now, you vaguely know what you're interested in. Once that's decided, consider what methods you're interested in. Figure out the top publishing venues in your field, and the collaboration networks within your academic community. This will often help you narrow your search for advisors and institutes.

- **Academic website:** Make a basic website if you do not have one, and keep it updated. Have your research publications, reports, projects etc and your contact information easily available. I cannot stress how important this is - I have received several emails and offers from potential advisors at top institutes through my website.
  - I personally use the al-folio template, which I have modified to suit my needs.
  - Some other academic websites I really like are Pascal Michaillat's website and Martin Saveski's website

- **GRE/IELTS/TOEFL**

  - Most (not all) PhD programs I applied to waived the GRE requirement. Some way waive IELTS/TOEFL requirements as well. Check these once before you start preparing (you may be able to skip this entirely).

  - A great test score probably won't drastically improve your odds, but a bad score might hurt them - my advice here would be to not unnecessarily stress yourself out to chase a perfect score.

  - Make sure you attempt the tests and order the scores in time for the application deadlines (some have separate deadlines for test scores). Also be prepared to pay money (lots of it).

2.2 Application Preparation

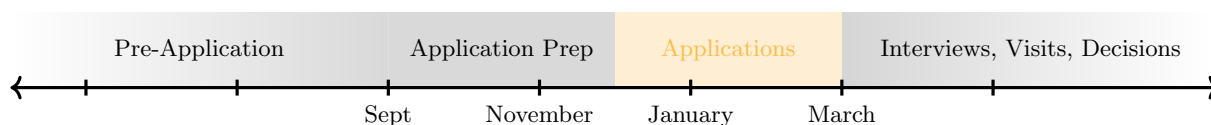| Pre-Application	Application Prep	Applications	Interviews, Visits, Decisions

Sept November January March
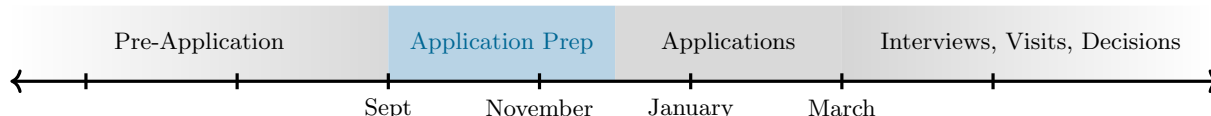
Around September is when you should ideally have a list of programs that you are interested in - this should also include professors (or research labs) in the institute that would be a good fit for your research interests. This is also when you should reach out to your letter-writers for recommendations (*a very important part of your application*) and prepare your Statement of Purpose, Personal Statement and Research Statements. Some applications also require a (possibly optional) writing sample - if you have a paper (or a pre-publication manuscript), this is a good opportunity to include that in your application packet. Personally, here's how I would rank application components relative to each other, in decreasing order of importance:

(1) Research Experience > (2) Letters of Recommendation > (3) Statement of Purpose > (4) CV/Resume > (5) Transcript > (6) GPA > (7) GRE/TOEFL/IELTS

- **Program Shortlisting:** A lot goes into deciding suitable programs. Your priorities may differ from mine, so I'll refrain from sharing strong advice here. Things that were important to me were my research group/ faculty and their interests aligning with mine, relevant labs, overall institute reputation, location etc. Be realistic about your chances (acceptance rates are often in single digits at top institutes) and apply as broadly as you can (I applied to 10 - 15 places across US and Europe). Some useful (CS-centric) resources are below:

  - CS Rankings attempts to objectively rank institutes by faculty publication counts (a drawback is that these numbers aren't normalized by the size of the institute)

  - CS Stipend Rankings is a similar objective ranking, which uses crowd-sourced information on PhD stipends, compared against the general cost of living in the area.

  - Vijay Chidambaram's blog lists several other factors to consider while selecting PhD programs

- **Application Tracking System:** Maintain a list of updated deadlines, requirements etc for each program. I maintained a Google Sheet tracking all applications. Be careful while copying information - sometimes programs may have different deadlines for different programs, early decisions etc (I messed up atleast 2 different applications because of poor progress tracking).

- **Reaching out:** There is mixed advice on whether you should reach out to potential advisors before your PhD applications. Here's what I did:

  - Attend conferences, especially ones that come before PhD deadlines (i.e from August - late November); be a Student Volunteer (for example: SV in CSCW). Talk to faculty as well as PhD students. I found my interactions with PhD students particularly helpful - they often have a good idea of who might be hiring, current interests and insights into the application process.

  - Ask your advisor to introduce you to faculty within their collaboration circles

– Professors are usually very busy - make sure your meeting is worth their time. Be familiar with their area of research and contact instructions on websites (some may require specific subject lines to prevent spam, some prefer not to be contacted prior to applications etc)

- **Statement of Purpose:** My advisor told me that my SOP was the weakest part of my application (and I therefore do not feel confident about giving advice here). Instead, I link some advice that I found useful, below:

  – [CS-SOPs](#) is a repository of several SOPs from successful PhD applicants, cataloged by programs.
  – Here's some good advice from [Swapneel Mehta](#) (PhD Candidate), [Nathan Schneider](#) (faculty) and [MIT EECS](#)
  – Proof-read your SOP many many times. Despite having proof-read more than 10 times, I have made blunders.

- **Letters of Recommendation**

  – Be strategic about choosing letter writers - an ideal recommender would be a senior professor/ researcher, well-regarded in their field, whom you have had extensive work history with. People reading the letter should be confident of the writer's credentials (and ideally recognise them) and the writer should be able to give personal anecdotes of your ability and potential to succeed in the program.
  – Give your letter-writers at least a month's notice, and if given a choice, always opt to *waive* the right to view your letters. Ask them if it is okay to follow up/ remind them, and do so if possible.
  – Some great advice on this exists from various faculty, including [Michael Ernst](#), [Matt Might](#) and [Manu Awasthi](#).

2.3 Apply

Pre-Application	Application Prep	Applications	Interviews, Visits, Decisions

Sept   November   January   March

- **Clear your schedule for the month**

  – December 1, December 15 and other dates may have several deadlines. Do not underestimate the time it requires to fine-tune your SOP - keep a light schedule during this time.
  – Pre-fill applications with basic demographic details, as much as possible. Maintain and update your application tracker regularly.

- **Ensure sufficient credit limit:**

  – Unfortunately, application fees can be a significant financial burden. Most applications fees will be around $100 - $150 - ensure that your credit card has sufficient balance

- **Follow up on LORs and test scores:**

  – Often, the LORs have separate deadlines (and sometimes they do not) - confirm this and ensure that they are received on time. Some application portals will allow you to track this - if they don't, try to reach out to your recommenders directly.
  – Test scores require a few days/weeks to be sent (I never understood why) - keep this into account and request these scores well in advance.

2.4 Post Application

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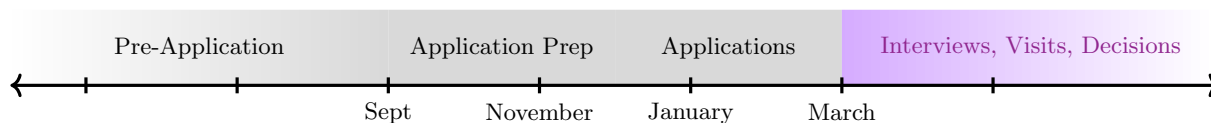
While most of your PhD applications should end by January, you may have interview calls soon. I received my first interview call on 31st January (and kept receiving calls even in March). These interviews are typically not technical (although I did have a few technical rounds) - the objective with these, crudely stated, is a thorough *vibe check*. I've had one-on-one interviews and follow-ups, as well as panel interviews, with up to 4 professors on the call. After I received offers, I was also invited to on-site PhD visit days (I visited 2 universities). Below, I share related advice:

- **Interviews:**
  - A subset of applicants will get interview calls - typically over Zoom/ Google Meet. Every institution has different timelines and most often, expected dates for these interview calls aren't explicitly mentioned. Sub-reddits (such as r/gradadmissions) and GradCafe are frequently used to share interview call updates. In my experience, sometimes these can be reassuring, but often, they can be unnecessarily anxiety-inducing. Note that all institutions (and programs within them) have vastly different processes and timelines for these interviews. Infact, one of the programs I got an offer from *never interviewed me* at all.
  - Once you get an interview call, you must go over your past projects to ensure you are able to speak about them. If you know who is interviewing you, you should be vaguely familiar with their research and prepare questions to ask them at the end. Here are some questions I have been asked:
    * Describe the best research project that you have undertaken - with follow up questions on the choice of methods, alternatives etc (almost everyone asked me some variation of this)
    * What do you want to do in your PhD/ Why a PhD?
    * Why this program and why this institute?
    * Strengths and weaknesses/ Describe a challenge you faced and how you overcame it.
  - The highlights of the entire application process (for me) were these interviews. They allowed me to interact (often one-on-one) with several top scholars and researchers in my field, get to know about their ongoing research and strike opportunities for collaborations even if they were not able to hire me.

- **PhD Visit:**
  - If you're authorized to travel to the US, do consider attending in-person PhD visit days (if offered) - some schools may cover your travel expenses (including international airfare). Use this opportunity to gain as much information as you can - talk to current graduate students, faculty, attend events, seminars etc. *Sidenote*: You can also reward yourself with a mini-vacation if you plan well.
  - Meet your potential future-colleagues during these visit days - this will help you a lot when you're navigating relocation logistics and looking for shared off-campus accommodation a few months down the line.
  - I found Andrew Kuznetsov's excellent guide on asking questions very helpful during this time.

- **Dealing with rejections:**
  - Always remember that PhD admissions are not a perfect or fair process. Luck and timing often play a huge role (for example, the best-fit advisor isn't hiring, or is on leave, or has already committed to re-hire a current Masters student etc).
  - I received offers from 'dream' programs, and rejections from 'safety' programs. Most people I know have had similar experiences.

– It may also be the case that you hear no updates on your application ever. While this may be frustrating (and potentially humiliating), know that you are not alone. In the words of my advisor, rejections are often the norm rather than an exception in academia.

3 FAQs

1. **How important are grades, GRE, Transcripts for your PhD applications?**

   To quote Matt Might (from his advice on what doesn't matter):

   GPA? I don't care if it's 2.0 or 4.0. I won't even look at it. The school you went to? I'll judge you the same whether you went to Nowhere State U or a top-ten school. Transcripts? Never seen one. GREs? Irrelevant. Where you work/worked? Unless it's a research lab, it's not important. I don't think these items have much predictive capacity as to whether or not someone can complete a Ph.D.

   However, some programs may have a basic GPA, GRE cutoff, which should be easy to meet. Transcripts may also matter if you have advanced coursework on specific subjects etc, but none of these matter nearly as much as your recommendation letters and research experience.

2. **Can I ask my research advisor, who is also a potential PhD advisor, to write me a recommendation letter?**

   Usually, there aren't any institution-level restrictions against this. If your advisor has worked with you and is willing to write one, it should be fine (and significantly help your application)

3. **How do I contact potential advisors?**

   I will start with referring to Matt Might's email policy, which I personally have been swearing by. My style has always been to reach out to PhD students first, and ask them to make an introduction to their advisors. I have also been fortunate to have advisors who have willingly introduced me to faculty, through conferences and other means. I do not believe in bulk cold-emailing. If you have to cold email, I would rather that you read atleast a few papers of the person you're reaching out to, demonstrate a clear understanding of their research interests and ensure that there is significant overlap with your interests. The worst thing you can do is completely disregard one's area of research and clearly give away the fact that you're mass-emailing.

   Also note that some faculty clearly do not want to be approached prior to applications. In general, you should always scan one's personal website for their communication/email preferences.

4. **I do not have publications yet, how bad is it?**

   It definitely isn't (shouldn't be) a deal-breaker in most cases. However, from my experience (and in my field, which is relatively very active), most successful applicants (especially international applicants) do tend to have 1-2 peer-reviewed publications at international venues. If you have a manuscript under review, you may want to include that in the additional writing samples some applications require. Alternatively, you may choose to use pre-print archives (like arXiv) to share non peer-reviewed manuscripts. It is however, important that you do not violate blind peer-review processes.

5. **Should I do a Masters before a PhD? Should I apply to Masters as a back-up option?**

   I think this boils down to your reasons for doing a PhD in the first place (Plugging Casey Fiesler's YouTube video again). I wanted to pursue a career in research - I chose not to do a Masters first because I couldn't find a program that would justify the tuition cost, or the opportunity cost in time for me. I did plan on applying to some Masters programs as back-up options, but

did not end up following through as I received my first PhD offer before the Masters application deadline (last rounds). If you plan on doing a PhD after your bachelor's degree, here's some advice from John Hewitt, Alternatives to direct PhD-after-Bachelors are pre-doctoral programs (here's a helpful introduction from Shaily Bhatt) and working in the industry/ research labs for a few years.

4 Miscellaneous Resources

- Sriram Krishnamurthy's comprehensive 2-hour long YouTube video

- Sriram Krishnamurthy's CS PhD FAQs

- Sriram Krishnamurthy's advice for Letter Writers (relevant if your writer needs some pointers etc)

- Casey Fiesler's YouTube Channel covers most aspects of PhD applications - a must watch, especially if you're applying for Information Science programs.

- Long lists of very helpful advice, particularly for NLP/ML programs, collated by Shaily Bhatt and Kalpesh Krishna

- Nelson Liu's Student Perspectives on NLP PHD applications is a mini-survey that reinforces several points made above - a must read!

- Here's a bunch of helpful FAQs from Noah Smith, faculty at UW.

- Maria Antoniak's blog echoes several points made above, and particularly relevant for those interested in Cornell's Information Science program.

- Mor Harchol-Balter's exhaustive PhD in CS Guide is another one-stop resource, from a professor's perspective.

- For undergraduates planning to do a PhD directly, here's advice from John Hewitt

- One of the best resources for writing a good SOP by Swapneel Mehta.

- A faculty's perspectives on a good SOP

- SOP Advice from MIT EECS

- A useful Reddit Thread on graduate school applications.