Level Up! Moving on to Graduate School

(or everything I wish someone had told me before I applied to graduate school)

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Finding Schools

What do you want to research? The more precise you can be, the better, but flexibility is also a good thing – you never know what projects are available!
A few ways to find a school:

- Look over papers you have read in the areas that you are interested in researching, see where the research is being completed.
- Ask your advisor and/or mentor(s), especially if they know people in the field at the school you want to attend.
- Size of the department
- School Brand (how well known is the university)
- Rankings
  US News and World Reports
  http://graduate-school.phds.org/rankings
  http://www.uscollegeranking.org/

*interesting tidbit: the University of Washington's Materials Science and Engineering program (my department) is only ranked around 26th on the US News and World Reports ranking of MSE programs. However, a recent survey of impact factors (basically how many papers been published vs. their citations; how far the research has reached) ranked the UW MSE department first! Clearly, rankings are not very reliable.

* it is important to note that you generally apply for a specific *department* not just the school, so make sure to read the departmental website to determine the application steps. Sometimes there is a general school + specific department application, sometimes there is just a specific departmental application, and sometimes there is a general school application and you just state what department you would like to join.

Before You Apply

- Email and introduce yourself to people/professors you are interested in working with. Create a cover-letter of sorts - introducing yourself, your background and why you are interested in them and their research. They are the people are on the admission committees and will push you through if they recognize your name and like you. Attached your resume to the email, targeted for their type of work.

- Get organized with all your documents in order (transcripts, essays, etc.)

- Ask recommenders for recommendations

Staying Organized

It is a very important in this process to stay organized, as there are many different deadlines, usernames, passwords, addresses, etc. that you need to keep track during the whole application process.

I organized with a giant spreadsheet – one for grad schools and one for fellowships. I included the following information:

- GRE scores/percentile (also your GRE username and password!)
- school
- deadline
- # of recs
- who you are having write recommendations
- documents/extras
- fee
- GRE school # (or dept #)
- Research groups
- Mailing address – where do transcripts need to be sent?
- Website (include you username/password)
- Who have you contacted?

School Finder Worksheet

School/ Department	Website	Research Focus	Potential Advisors	Pros	Cons	Apply? (Y/N)

Parts of Your application

The GRE

- Make sure to take it as early as you feel comfortable, as it is not offered everyday and you may need to retake it.
- It is a NEW GRE now, make sure to get the right study book (I recommend Barron's), and you probably don't need a study course as there are many free materials.
    - Kaplan has a free math review, but did not go over everything
    - There are practice tests online from ETS and from any book you buy.
- Know *early on* if you need to take a subject test for your field – they are notoriously hard, so you will most likely need to review/study.
- Have some schools in mind to send scores to when you take the test, you get 4 free score reports that day.
- Online review sites:
    - Grockit.com
    - Number2.com

Personal Statement

Probably the most important part of the application packet – it is where you get to talk about yourself, your motivation and really let the admissions committee get to know you. There is no one way to write a personal statement/statement of purpose, but you can find some examples online. Mainly a personal statement needs to include:

- A catchy introduction – use a story from your life to tie the whole personal statement together.
- What you'd like to pursue in graduate school
- Pertinent background information
- Who you would like to work with, including projects
- Future goals

Tips:

* Don't be boring, but don't be cheesy – this is a place to showcase your writing skills, tell your story, and sell yourself.

* Spend some time just free writing, then organize after you've written words on paper.

* Have people from a career center read it; have friends read it and summarize it back to you.

Personal Statement Brainstorming Worksheet

Why do you want to go to graduate school?

What do you eventually want to do for a career? Industry? Academia? Government lab? Why?

What first interested you in STEM and your specific field?

What are your favorite research experiences?
What made them fantastic?
What did you learn?
What skills can you take away from each experience?
Did you work by yourself or with a team? How much of the project did you design or decide what steps to take?

What type/topic of research would you like to investigate in grad school? What makes you interested in that topic?

Find at least two groups at EACH university you are applying to that you potentially would like to work with.

Why do you want to work with each prof?

How can your existing skills and experience contribute to his or her research?

How does his or her research fit with your career/life goals?

Recommendations

You've most likely asked for recommendations before, but you need at least three (3) for each application and some applications are due quite early in the fall. Here are some tips for getting *great* letters of recommendation

- Think of 4-5 people who have supervised your research or who taught a course where you worked on a large project. Generally, people in your field are best, but the most important thing is that they actually *know* you. Usually if you have two really good recommenders and one weaker one, you should be fine, but three solid recommendations are best. You'll probably need to ask more than just three people, as sometimes a recommender may not be able to meet a deadline or they feel they are too busy. Hopefully this won't happen, but sometimes it does. Also some fellowships applications ask for more than 3 recommendations, so it's always good to have a longer list of potential recommenders.

- First, email to ask if they are *willing* to write you a recommendation, explaining what it is for and when the deadline is. Do this at least *one month in advance - basically right as you get to school* – especially since many fellowship and top schools have early deadlines.

- If yes – send them more information about the program, why you want to pursue this program, along with your resume/CV, what you want them to highlight. Give them a deadline about a week before you plan to submit your application. *Come up with a document that details all this information and send it to them at once.

- BUG THEM about finishing recommendations. They (and the application website) should send you an email when it is done, but if you haven't heard anything, email them again. Or check in with them in person.

- At least two of your recommenders should be technical ones who have overseen your research. If you want a non-technical reference, that is fine, but more technical is better. I chose to have one professor who was from the English department who oversaw my honors program. He was able to speak to the program's scholarly preparation for me.

Recommender Worksheet

List 4-5 potential recommenders, find their email addresses, official title, and phone number. Check off the box when you have initially contacted them and list what applications you have asked them to submit a letter to.

Name	Email	Phone	Official Title	Contact?	Recommending for school/ fellowship:
M. Meyyappan	m.meyyapan@nasa.gov	xxx-xxx-xxxx	Chief Scientist for Space Exploration Technology	Yes	UW, RPI, GT/ NSF, NASA

Resume/CV

You'll probably need three different versions, but it will vary with where you apply:

one with everything, including extracurriculars;
one with no extracurriculars;
one without publications.

The applications differ; sometimes you put publications and extracurriculars separately. By the end of this school year, I'd recommend contacting your school's career center about getting someone to review your CV. They can give really good feedback, especially as a CV for a graduate application is going to be slightly different than what the internet might suggest for a job-application focused resume. The main principles are the same, but the skills and jobs you will want to highlight will be different. You'll also want to find a facile way to highlight awards and honors, as well as your presentations and publications. Continually update your CV; you never know when you may need to send off your resume! And continually updating your CV means you never have to spend one giant chunk of time on it.

Transcripts

Send them as early as possible. Not getting them in on time could cause your application not be reviewed, as most graduate schools are not quite as lenient on deadlines as undergraduate universities.

Diversity essay

Some schools and fellowships will ask for a statement on diversity – your experiences with it and how you will work to encourage diversity in STEM, but each prompt is slightly different. If you get the option to submit one or not, I would recommend spending some time on one, you will present a more well-rounded application.

Visit Days!

Always go if they offer to have you visit a school. If you're going for your PhD, they should pay for it and generally make all the travel arrangements. They most likely will not pay for it if you are just applying for the Masters program. In the sciences, generally you go before you are accepted and kind of get interviewed, but in engineering, you get accepted before you go visit and you are interviewing them/their profs. Either way, you need to visit and meet with as many people as possible before choosing a school to attend. Pay attention to the emails you get – every school does their visit day differently, sometimes they have you just send who you're interested in, sometimes you need to set up your own individual appointments, and sometimes you decided who to talk with after the first visit day. Don't feel like you need to read and memorize their recently published papers, they understand that you've heard a bunch of information during your visit and will gladly explain their area of research again.

A few questions to ask advisors:

- average time to PhD (varies by group)
- how large of a group?
- are they looking for students for next fall
- what projects are 'open'
- how do they work with students – hands-off or hands-on?
- try to tactfully find out their philosophy of research – what are their hours at work?

Pay attention to how the program is structured overall, but don't stress about remembering the details, you will go through an orientation at whatever school you choose. Do take notes throughout, I would recommend packing a small journal, as paper is not always provided. Take some time to list a few questions you would like to ask each faculty member or grad student the night before you meet with everyone. Ask about TA requirements, some only require a TAship if you have a TA stipend, but some will make you TA no matter where your funding comes from. Some schools, if you're interested, have extensive TA programs where you actually take classes/gain tools to become a teacher after graduation.

Every school slated a time for only current grad students to meet with the prospective students (usually over lunch) - use that time to talk with students about what it is like to be there or work with certain profs. They were very insightful and I definitely felt like I fit in with some groups but not with others. They can also tell you about the culture/environment of the department and the school as a whole.

Finances

Generally *PhD* programs are fully funded and stipends are between $20,000-$30,000 per year, depending on the school, cost of living, etc. You need to pay attention to where funding comes from, in case you need to TA or if you get a RAship where no teaching is required. If you have your own fellowship, you probably won't get any money from the school. Award amounts will vary based on the tuition at the school, so pay attention to the breakdown.

Check if you get health insurance or any other benefits. It can get confusing, but usually one of the department's administrative people will know details and you'll get letters and such.

Do you have funding through the summer? Does your program require you to research over the summer?

What student fees are you responsible for? There was a large variation in the schools I applied to, from $250/quarter to almost $1000/semester.

Sometimes, they'll toss in more money if they really want you to come, but generally I haven't heard of anyone negotiating for a higher stipend. I think that used to be an okay practice, but I'm not sure if it is acceptable now. (Rice) For me, money was not the end goal of going to graduate school, but it could be a deciding factor if you like two school equally.

Master's students are generally not funded, especially if you choose to do a non-research track. If you want to go that route, sometimes you can find a company you want to work for and they have allowances for post-bacc classes or masters degrees, where you'll work full- to part- time and go to classes at the same time.

Finally - Picking One School

Advisor compatibility and lab should trump any other consideration. It is really really important to select someone you can get along with for 4+ years, even if the work is not precisely what you wanted. You can be on the perfect project, but without a good advisor it will be a miserable experience.

Weather shouldn't be the biggest concerns, you should be able handle different weather for 5 years.

School Rank – eh. Not that important. See 'Advisor'

Fellowships

Fellowships can be difficult to apply for during your senior year in college because you don't actually know where you'll be, who you will be working with, and what you'll be working on. You can apply and be a bit vague in your essays, but it can weaken your overall application. There are some you can apply for (Hertz/Ford) more easily than others (NSF, SMART), but all fellowships generally have early (November-ish) deadlines.

A spreadsheet with the following headings can be helpful in keeping track of all the fellowship applications:

- fellowship
- date due
- # of recommendations
- length of fellowship
- when are you eligible
- recommenders
- documents required
- stipend amount/travel/tuition
- mailing address
- website (along with login information)
- GRE scores? And fellowship codes
- Service Requirement post-degree?

Here are some STEM fellowships to look at:

- Harriet Jenkins (same eligibility as MUST)
- National Defense Science and Eng Grad Fellowship
- Department of Energy
- Integrative Graduate Education and Research Traineeship (IGERT)
- Boren Fellowship
- NASA GSRP
- Fannie and John Hertz Foundation
- IBM Fellowship Program
- East Asia and Pacific Summer Institutes
- Grants-in-Aid of Research Program
- National Mortarboard
- Selected Professions Fellowship (masters)
- National Physical Science Consortium Fellowship
- Graduate Women in Science
- Ford Foundation
- National GEM Consortium

Other Resources:

http://www.gettingintogradschool.com/
http://blogs.cofc.edu/gradschool/2011/02/21/applying-to-graduate-school/
http://www.quantumdiaries.org/2010/02/28/thoughts-on-how-to-pick-a-graduate-school/
http://www.cs.virginia.edu/~robins/PhD.html
http://www.jenniferwang.org/nsf.html

Thanks, Internet:

http://danny.oz.au/danny/humour/phd_lotr.html