

# Applying to Graduate School in CS and Math

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September 2013

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# Graduate degrees: MSc

- 4–5 courses and a project or small thesis with a faculty advisor; ~17–24 months.
  - In Canada: May be pre-cursor to PhD.
  - In U.S.: Terminal degree or consolation prize for PhD dropouts.
- Enhance your employability.
- Prepare for PhD and research career.

# Graduate degrees: PhD

- Research-oriented degree: dissertation with faculty advisor, ~44–60 months.
  - For career in industry or academia.
- In Canada: Follows MSc (possible automatic continuation).
- In U.S.: Direct entry from BSc.  
(but correspondingly longer duration).

# Am I a good candidate?

- GPA  $\geq$  3.7
- Like learning, like solving problems.
- Prepared for long hours, low pay.

# Am I a bad candidate?

- Want to delay entry to real world, real job.
- Coasted along as undergrad, plan to continue.

# Choosing a school

- Considerations:
  - Quality of university and of department.
  - Quality of faculty in topics of interest.
  - Quality of life in location.
  - Funding available.
- Ask relevant profs for advice.

# Some good CS depts

- University of Toronto, Dept Comp Sci:
  - #11 in world, best outside U.S.\*
- Elsewhere in Canada:
  - UBC, McGill, Alberta, Simon Fraser, Waterloo, Dalhousie

\*Academic Ranking of World Universities  
<http://www.shanghairanking.com/SubjectCS2013.html>

# Some good CS depts

- U.S.:
  - MIT, Carnegie Mellon, Stanford, Berkeley, U Washington, Cornell, U Texas Austin\*, U Maryland College Park\*, U Michigan, U Illinois Urbana-Champaign\*, ...
- Technion, Tsinghua, Oxford, HKUST, ...

\*Not other branches.



# How to apply

- **Toronto and U.S.: Deadlines in December.**  
Smaller schools may have later deadlines.
- **Allow  $\geq$  1 month to assemble application:**
  - Statement of purpose.
  - Names of three profs who will give references for you.
  - Transcripts (possibly unofficial scan or paper).
  - CV (sometimes).
  - GRE scores (for U.S. schools), TOEFL (in some cases).
  - Application fee (typically ~\$100).

# Statement of purpose

- An essay on what you want to do and why.
- Should include
  - your accomplishments as an undergrad,
  - your special interests,
  - what faculty members you would like to work with – hence different for each school,
  - any other relevant factors, esp re specific school.
- Do not include tales of your childhood.

# References

- From reliable profs who really know you.
- Ask prof first before listing him/her.
  - “Are you comfortable giving me a good reference to grad school?”
- Give prof your CV, statement of purpose, and any other supporting materials.
- Might also ask for feedback on statement.

# GRE

- Graduate Record Examination:
  - Verbal, Quantitative, and Analytical components.
  - For good schools, need top Q, near-top V and A.
- GRE subject examination (CS or Math) sometimes required too.
- Register now to get scores in time.

# TOEFL

- Test of English as a Foreign Language.
- May be required of applicants who are not native speakers of English.
- Usually waived if ugrad degree is in English.

# Funding

- Grad school acceptance includes funding!  
Usually.
- May include:
  - Waiver of registration fees.
  - Salary as TA or Research Assistant for  $N$  hours a week. (Typically  $3 \leq N \leq 20$ .)
  - No-strings-attached funding.
  - Supplement to an external scholarship.

# External scholarships

- Similar to a grad school application.
- NSERC CGS M: one year, \$17,500.
  - Apply through NSERC by 1 December.
  - Specify  $\leq 5$  schools you are applying to.
- Ontario Graduate Scholarship (OGS).
  - Similar, but apply (separately) through each university of interest. (Each will set its own deadline!)

# Getting an offer

- Wait nervously.
- Might get invitation to visit school!  
“Grad visit day”.
- An offer must be accepted (or not) by  
(usually) 15 April.
- Do not accept an offer and then renege.



# Assessing an offer

- Who will be your advisor? How will your topic be chosen or assigned?
- What / how many courses will be required?
- What kind of desk-space will you get?
- What is the social life like?
- Will you like living in city X?

# Assessing a funding offer

- Don't just accept offer with biggest funding!  
Considerations:
  - How much non-student work is required?
  - What is the cost of living in the city?  
Rent, need of car, etc.

# Applying to CS at UofT

- Apply for NSERC scholarship to increase your funding.
- Talk to local profs.
- Be Canadian if possible.  
(PR is okay.)

# To do before 4th year

- Get to know your faculty members.
- Attend research seminars, decide what interests you.
- Read academic research papers.
- Do research projects with professors.
  - CSC D94, D95.
  - Undergrad Summer Research Awards.