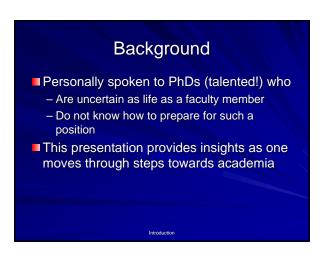# Are You Interested in Graduate Studies?

Presentation for Career Services
Nov 11 2009

© David A. Clausi
Associate Professor
Systems Design Engineering
dclausi@engmail.uwaterloo.ca

Overview

- Presentation created as an overview to aspiring to an academic life
- Note: slide summary available on my website

Who should see this presentation?
- Any undergraduate student or even MASc student

Who Am I?

- Completed BASc (1990), MASc (1992), PhD (1996) in Systems Design Engineering at UW
- Variety of u/g co-op experiences
  - Later positions in research were more invigorating
- Worked in industry (AGFA nee Mitra)
- Tenure track position @ U. of Calgary
- Returned to UW 1999

Background

- Personally spoken to PhDs (talented!) who
  - Are uncertain as life as a faculty member
  - Do not know how to prepare for such a position
- This presentation provides insights as one moves through steps towards academia

---

Disclaimer

- My own thoughts based on my own experiences
- Tried to keep things fairly generic
- Opinions are primarily my own
  - did have feedback from colleagues
- Not discipline specific, but keep in mind that I am coming from an engineering (professional school) perspective
- Other faculty will have their own spin
- Also, other countries, provinces, universities, departments, schools, etc. will have variations

---

Outline

1. Why obtain a graduate degree?
2. Building an appropriate education

Why go to graduate school?

Why go to graduate school?

- Broaden your experience
- Not sure what you want to do
- Poor economy
- Career requirement (e.g. clinical psychologist, professor)
- Really get an education!
- Meet interesting people
- Not ready for real world
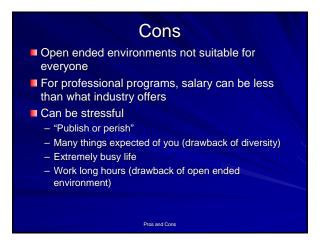- Work with smart people
- Someone suggested you should

Undergrad	Grad
Many courses	Few courses
Broad-based education	More focused education
Many-to-one instruction	Few-to-one or one-on-one instruction
Learn fundamentals	Learn about research
Answers usually known	Many questions without answers
No free time	More of a life
Some funding	Sufficient funding, if qualified

Pros and Cons of Being an Academic

- No job is perfect!!!
- Many advantages to being a faculty member
- Also many shortcomings
- Emphasis based on your personality
- Understanding these pros and cons helps you to gauge whether or not this is an appropriate profession for you
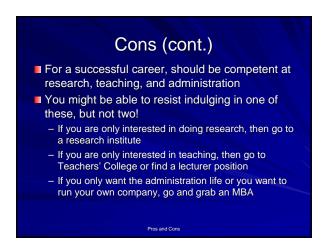
Pros?

Pros

- Control your own research direction
- Travel (choice!)
- Flexible hours (other than teaching duties and meetings)
- Open ended thinking / Encourage creativity
- Sabbaticals
- Opportunities for consulting work / start company
- Respected profession
- Diverse life
- Security (with tenure)
- Life in university environment is enjoyable

Cons?

Cons

- Open ended environments not suitable for everyone
- For professional programs, salary can be less than what industry offers
- Can be stressful
  - "Publish or perish"
  - Many things expected of you (drawback of diversity)
  - Extremely busy life
  - Work long hours (drawback of open ended environment)

Cons (cont.)

- Many skills required: teacher, role model, scientist, manager, prolific writer, communications specialist
- Administrative duties may take you away from other things that you enjoy more
- Takes a long time to get established
  - More difficult for women who want to start families
  - Recently, this issue is better addressed by universities

Cons (cont.)

- For a successful career, should be competent at research, teaching, and administration
- You might be able to resist indulging in one of these, but not two!
  - If you are only interested in doing research, then go to a research institute
  - If you are only interested in teaching, then go to Teachers' College or find a lecturer position
  - If you only want the administration life or you want to run your own company, go and grab an MBA

2. Building an Education

- Need to consider educational background necessary for your next stage
- Ticket to landing your ideal graduate positions
- Many items play a role in this …

Choosing a Graduate Program

- What do you feel is the #1 most important thing to consider when choosing a graduate program?
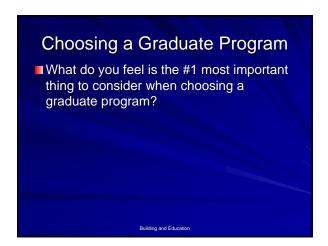
Choosing a Graduate Program

- Most critical part of choosing a PhD is finding an appropriate supervisor (3-4 year commitment!!!)
  - Offer secure funding
  - Send you to conferences (willingness and funding)
  - Offer ongoing support (non-financial)
  - Be an active researcher
  - Have an active research group
  - Personality check
  - Check expectations
  - Current number of grad students?
  - Reputation (teaching or research awards)
  - Check with current grad students

Building and Education

Choosing a Graduate Program

- Your goal should be to find an environment where you will learn the most and gain the best experiences
- Location is important (not critical); recognized university provides:
  - Reputation
  - Advanced courses by highly successful researchers
  - "Pedigree" – particular programs/supervisors can be important
- PhD programs take on different flavours for everyone
  - Some work very independently from their supervisor
  - Others work more closely with supervisors
- Need to develop your own area of expertise

Building an Education

Funding a Graduate Program

- Established faculty will have grants to support limited number of students
- If you are accomplished, apply for scholarships
- Need to apply early, namely, apply in Sept. to start in May or the following Sept.
- Generally apply through current u/g department
- Need positive reputation since dept. will rank you, then university will rank you, then NSERC/OGS will decide
- Scholarship provides considerable flexibility and puts you in the "driver's seat"
- Be cautious of top-up funding for scholarships: they may require some work i.e. may require you to be a TA

Building and Education

Choosing a Graduate Program – Questions to Ask

- Jobs? Academic or non-academic
- Convert Master's to PhD?
- Regular research meetings? Other methods for building a collegial atmosphere?
- Average time to completion?
- What is the drop out rate? Reasons?
- Professional skills development programs? e.g. CTE
- Expectation to work in supervisor's funded research area?
- What lab/office space is available?
- See publications at www.caqs.ca

Building an Education

Remain at Alma Mater for PhD?

- Key issue is breadth of experience
- I completed 3 degrees at UW, but obtained different experiences in each one
- Same field of study with same supervisor for Masters & PhD generally does not provide breadth
- May be constrained by personal reasons
- Need outside experience before considering a faculty position

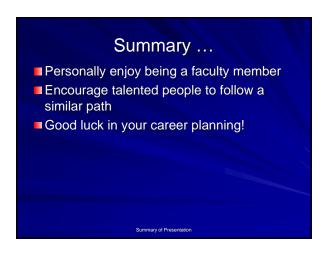Building an Education

Experiences

- Obtain as many experiences as you possibly can!!!
- Graduate school life has a lot of flexibility
- With proper planning, you can gain a wealth of experience in teaching, research, and administration
- Avoid taking job before degree is completed

Building an Education

Suggested Experiences

- Technical know-how in relevant, current fields
- Journal publications
  - 1 MSc/MASc level; 2 at PhD level (more if possible!)
- Conference experience
  - Inform research world of your contributions
  - Networking! Helps to meet research leaders in your field
  - Best to attend key conferences in your field
- Teaching experience
  - Some universities have teaching programs e.g. CTE
  - TAships: get some experience lecturing to whole class
- Administration
  - Participate in graduate student association
  - Help organize a conference
  - Be part of a research network graduate student organization

Building an Education

What to do after the PhD?

- Not always easy to find a faculty position after completing a PhD
- Reasons:
  - Inexperience
  - Many other qualified people around
  - Suitable position may not be available
  - Timing

Building an Education

What to do after the PhD? (cont.)

- While waiting for a faculty position, consider:
  - Industry
    - Relevant work experience can be very beneficial to a new faculty member
    - May be difficult (over qualified)
  - Post-Doctoral Fellow (PDF)
    - Provides more of a direct route to faculty position
    - Does not guarantee a faculty position
    - Less $$ than industry
    - Means of following through on ideas generated in your PhD (i.e. offers dedicated opportunity to publish)

Building an Education

Summary …

- Personally enjoy being a faculty member
- Encourage talented people to follow a similar path
- Good luck in your career planning!

Summary of Presentation

Thanks …

- Handful of "reviewers"
  - Profs. Alex Ortiz-Lopez (Math), Ells Ledrew (ES), Jon Oakman (Psychology), Greg Dudek (McGill)
- CTE personnel
  - Genevieve Desmarais, Tracy Penny Light, Donna Ellis, Barbara Bulman-Fleming

Summary of Presentation

Questions???

Building a Professional CV

- CV (curriculum vitae), or academic brief, details all of your academic contributions
- Note: "resume" is a 1-2 page summary
- Can start building such a document now
- Will update in an ongoing manner
- Be honest!!!
- Contents:
  - Personal Data: Degrees, Employment Record, Awards
  - Summary of teaching, research and administration. In more detail …

CV: Teaching Component

- Provide a personal statement about teaching
- Description of all courses instructed, student ratings, curriculum development, class size
- Graduate students supervised: thesis title, dates supervised, explanation for dropouts or extended programs, where they are now
- Other supervision: undergraduate projects, co-op students
- Listing of graduate examination committees

CV: Research Component

- "Big picture" research objective statement
- Publication List (order is discipline dependent):
  - Refereed journal accepted
  - Refereed journal submitted (only indicates activity)
  - Conference: full paper refereed
  - Book chapters
  - Conference: abstract refereed
  - Non-refereed material (including technical reports)
  - Theses
- Journals/conferences have quality component
- Helps to start publishing early, in Masters or undergrad program

CV: Research Component (cont.)

- Explanation of contributions to jointly authored refereed journals
  - More of an emphasis on this nowadays
- Description of various projects
- Listing of all funding sources, co-investigators, identify the P.I., amounts, and time periods
  - Eventually divide into currently held, applied for, previously held funding
- Examples of technology transfer

CV: Administrative Experience

- List contributions at departmental, faculty, and university levels
- List all committee work
- Society memberships, journal and conference reviews, conference program committees, etc.
- As graduate student, ample opportunity to participate
  - Part of graduate student society
  - Volunteer work