

A decorative yellow circle is positioned on the left side of the slide, partially overlapping the title text. A large yellow bracket is on the right side, enclosing the title text.

# How to Succeed in Graduate School: A Guide for Students and Advisors by Marie desJardins

**CS 7123 Research Seminar**  
*CS-UTSA*

Turgay Korkmaz

# [ Introduction ]

---

- Goals of the Paper

- a healthy and interactive graduate student-advisor relationship
- guidance for both advisors and graduate students
- providing references and resources

# [ Before the Process ]

- Give a good reason to go to graduate school
- Try to find an area to specialize in
- Contact faculty members (tell them about yourself)
- Talk to graduate students (about advisors, opportunities...)

# [ Research Phase ]

---

- Day-to-day Process
- Staying Motivated
- Working on the Thesis
- Getting Feedback
- Getting Financial Support

# [ Day-to-day Process ]

- Keeping a journal of research activities and ideas
- Reading Papers
  - Read selectively (Ask your advisor)
    - + Classic and up-to-date papers
  - Apply the reading tips before jumping on a paper
  - Take notes while reading

# [ Day-to-day Process (Cont') ]

## ■ Reading Papers

- Question the paper (make sure it worked)
- Try to get past buzzwords (Do they useful?)
- Try to understand the paper in deep
  - + motivations for the problem
  - + the choices made in finding the solution
  - + the assumptions (are they relevant?)
  - + future work (Can I develop an extension?)
- Keep the papers (set up an online bibliography)

# [ Staying Motivated ]

- Find a sympathetic ear (your advisor, friend)
- Maintain a regular schedule
  - Set up regular meetings with your advisor
  - Attend seminars
  - Take time out to recharge your battery
- Set daily, weekly, and monthly goals
- Use a “buddy system”
- Apply divide-and-conquer strategy at all steps

# [ Working on the Thesis ]

---

- Finding an Advisor
- Finding a Thesis Topic
- Writing the Thesis



# [ Finding an Advisor ]

- Look for the ideal advisor
  - Read their research summaries, go to their talks, attend their courses
  - Talk to other graduate students, and ask them about the advisors
  - Find out how long does it take for their students to finish their degrees
  - Find out how long have they been on the faculty

# [ Finding an Advisor (Cont') ]

- After identifying your advisor
  - Introduce yourself and describe the area you want to work in
  - Attend their research group meetings
  - Read their published papers, and the work of their students
  - Ask for any positions available
- Multiple advisors

# [ Finding a Thesis Topic ]

- The future work section of papers
  - Try developing and implementing an extension
- A good Ph.D. thesis topic:
  - should be interesting to you, to your advisor, and to the research community
- Be aware of on-going research in your field

# [ Finding a Thesis Topic (Cont') ]

- Try to solve a real problem
- Try to find the right size problem
- Write description of the problem and the proposed solution
- Write an outline
- Present your ideas in as much as detail as possible in your proposal

# [ Writing the Thesis ]

- Doing the research and writing the dissertation phases overlap
- Apply the divide-and-conquer technique
- Explain your motivations, goals, and methodology clearly
- Be repetitive by presenting the ideas at several levels of abstraction
- Use Examples
- Try to find a “writing buddy”

# [ Getting Feedback ]

- Realize the importance of getting feedback
- Present your ideas to get feedback
  - Prepare papers/pre-publishable papers written carefully and clearly
  - Give presentations at seminar series, and conferences
  - Attend conferences and talk about your research
- Give feedback to your colleagues

# [ Getting Financial Support ]

- Sources:
  - fellowships (NSF, universities, foundations, government agencies, and industry)
  - employer support
  - RA (a good way to be involved in a research project) and TA
- Write a proposal for a research grant or fellowship

[

]

Start today!



# Becoming Part of the Research Community

- Why?
  - Because this paper say so 😊
- How?
  - Publish early, go to conferences (Advisor help)
  - Student travel grants
  - Request papers, explanations and help from researchers
  - Subscribe to technical discussion groups
- What to get
  - Credibility
  - Visibility
  - Experience and knowledge
  - Good contact/reference list

# Attending Conferences

- Meet other researchers
  - Big guys
  - Small guys
- Discuss your ideas
  - Realize that your ideas are as good as ...
  - Be careful, some may publish it before you
- Learn hot research areas/issues/ideas
- Learn how others present their ideas
  - Can you to better?
- Ask questions to presenter (be nice)

# Attending Conferences giving a talk

- Prepare a good talk
  - Practical, fits in time slot, readable, uses examples, starts from big picture...
- Do not try to impress! Try to inform and convey your message
- If you inform, you will impress!
- You are under fire! Be ready!
- Finally, rehearsal, rehearsal!

# [ Publishing Papers ]

- It is not sufficient but necessary for ...
- Put time stamp on your contributions
  - People are smart, they might get it before you
- Write good papers or Do good research
  - One without the other does not fly!
- You reach a wider audience
  - If you publish in a good place
- Get feedback from reviewers and readers
- Publish or perish!

# [ Publishing Papers (cont'd) ]

- Make sure you have good ideas and results
- Then, write but
  - Don't give reader (reviewer) a hard time
  - If he/she does not understand, it is your fault too
  - Re-write, revise again and again
  - BTW, before writing read A LOT!
  - If not accepted first time, don't be discouraged,
  - Reviewers: mistake, bias, enemy
  - Revise, re-submit, you might be lucky this time!
  - After a conference, extend your work for journal

# [ Networking ]

- Know people
  - Read their papers, web pages, attend their talks, ask questions during/after talk, request information
- Make yourself known
  - Do good research, give good talks, publish in good places, prepare up-to-date web pages, send e-mails
- Interact with people and their contacts
  - If not an outgoing person, this is hard
- Be ready for “So what are you working on?”

# [ Networking (cont'd) ]

- Try to collaborate
- Write white papers, ask people for comments
- Provide services to your community
  - Review papers, volunteer for local conf.
- Summer internships
- Provide/get mentoring

# [ Advice to Advisor ]

- Relate the grad students as individuals
- Not as anonymous research assistants or tickets to tenure
- Work with all and value their efforts
- Know your students personally and professionally
- Don't forget, you were a grad student once upon a time!



# [ Advice to Advisor (cont'd) ]

The roles of an advisor include:

- Provide guidance, but also give freedom
- Help your students to be part of research community
- Find financial support
- Help your students even after graduation

# [ Interacting With Students ]

- We all have different styles
- Regular meetings and informal meetings
- Long-term and short-term goals
- Win-win situation
  - Topics you both are interested in
- Give constructive feedback
- Women in CS

# [ Social Aspects of Advising ]

- Start purely professional
- But become friends at the end
- Be honest and open
- Balance, balance
- No intimate relationship or dating  
(University policy)

# [ All Work and No Play! ]

- Again balance, balance
- What works for A might not work for B
- Know yourself and your situation
- Set your goals and priorities
- Then you will take appropriate path
- Learn how to say 'NO'

# Issues for Women

- Many issues are the same for men or women
- But, they may react differently
  - Process-oriented vs Goal-oriented
  - Talk vs no talk
  - Yes/No means yes or no?
  - Men are from Mars, Women are from Venus by John Gray

# [ On Finishing ]

- Yes, it is difficult
- But, benefits are significant

You learn how to solve what is not solved before,

...it isn't just that I can **write technical things** and I can **talk to other researchers with confidence**--I can talk to almost any authority figure with confidence. Partly this is because **I now know what it is to be an expert in something**, and although **I respect other peoples'** expertise in their areas of specialization, I also know that I'm just as respectable and they (usually) aren't any more so than I. I also think I can **write about other things/in other areas**, provided I've done my homework and learned the area. I feel EMPOWERED!!! And I would **never have gotten this from a CS programming** job or even a masters degree.

# [ Conclusions ]

- There are a lot of papers, web pages that can give you advice
- They are useful
- But not all may work for you
- In the light of these advices, develop your own methods!
- I hope the grad school will be a great success for all of you.

# Ten heuristics for problem solving

How to Solve it: Modern Heuristics by Michalewicz and Fogel. Springer 2004.

1. Don't rush to give an answer, think about it
2. Concentrate on the essentials and don't worry about the noise (tiny details)
3. Sometimes finding a solution can be really easy (common sense), don't make it harder on yourself
4. Beware of obvious solutions. They might be wrong
5. Don't be misled by previous experience



# Ten heuristics for problem solving

How to Solve it: Modern Heuristics by Michalewicz and Fogel. Springer 2004.

6. Start solving. Don't say "I don't know how"
  - Most people don't plan to fail, they just fail to plan!
7. Don't limit yourself to the search space that is defined by the problem. Expand your horizon
8. Constraints can be helpful to focus on the problem at the hand
9. Don't be satisfied with finding **a solution**, look for better ones
10. Be patient. Be persistent!