FINDING AN ADVISOR AND DEVELOPING AN EFFECTIVE WORKING RELATIONSHIP

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Who Am I

- Daughter, Sorority Sister, Researcher, Teacher, and Friend!
- Lover of Technology, reading, learning, music, food, movies, and much more!
- 4 degrees (3 in CS and 1 in Information Science)
- Research Interests: Authorship Attribution, Machine Learning, and Privacy.
According to the dictionary

• Advisor
  – somebody who gives advice
  – somebody who advises students on academic matters such as course choices

• Mentor
  – somebody, usually more experienced, who provides advice and support to, and watches over and fosters the progress of, a less experienced person

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Advisors

• Know the rules needed to successfully complete a graduate program (e.g., graduate program director)
  – Course obligations
  – Teaching obligations
  – Time limitations
• Provides a map to complete your degree
Mentors

- Helps you **navigate a path** to your destination
  - May help you decide what that destination is
  - There are **many** different decisions
  - Helps prepare you to succeed in your career

- PhD program is basically an apprenticeship
  - Work closely with someone to learn the craft
But, mentoring is not taught

• Some faculty are better at it than others
• One mentoring style might work for some students, but not others
  – Try to find a faculty mentor who has a style that works for you
  – Or, try to find an accommodation that works for you both
Where to find a mentor?

• Ideally, your faculty advisor is your primary mentor
• Also consider other faculty members who know your research area
  – On your thesis committee
  – Associated with your research group
  – In your department
  – In another department/university
• And if none of the above suffice, find a wise and supportive faculty member who is not in your research area
What an Advisor/Mentor Should Do

• Teach you basic **skills**
  – How to write a paper, give a presentation, do experimental evaluation, …
  – Professional expectations

• Teach you **tactical** planning
  – How to frame a paper/presentation for a particular audience
  – Where to submit particular results

• Teach you **strategic** planning
  – What pubs are needed to get a job at a top research institution?
    What conferences and journals to focus on
  – What are the important research questions
What an Advisor/Mentor Should Do

- Help foster and promote your career now and forever

For example:
  - Letters of recommendations
  - Introductions
  - Nominations for awards, program committees,…
What to look for?

- Nicest (easiest) person on the faculty may not be the best mentor
  - Need to be knowledgeable, active, well-respected
  - Mentors need to give positive and negative (but constructive) feedback
- Most well-known, high-powered faculty member may not be the best mentor
  - Too busy
  - Too many students
- May need to balance:
  - Need for support (financial and career development)
  - Need to be well-trained
  - With research interests
Beneficial to have more than one mentor

• May get alternative points of view
  – Ultimately, it is your career, so the choices are yours
    • BUT, your advisor has to sign-off on your thesis
• If in the same research group, can help mediate when there are disagreements or conflicts
  – E.g. Authorship, research directions
• If not in the same research group, can suggest alternative approaches for you to consider
Lori Clarke on one slide

- BA Mathematics, University of Rochester
- PhD Computer Science, University of Colorado
- Faculty, University of Massachusetts Amherst, 40 years
  - 18 PhD students
  - Research: Software Engineering and now Medical Safety
- Currently faculty emerita, with a post retirement appointment

For fun:
- Traveling
- Tennis
- Hiking
- Skiing
- Family
Selecting a faculty advisor

• In some departments, each faculty member admits students to specifically work with them
  – Can select the school knowing who your advisor is likely to be
  – But, if you do not get along or if you decide to change areas, it can be hard to change advisors

• In some departments, students are guaranteed support until they decide
  – May have to commit to a school without knowing who you will work with

• Some departments try to encourage an environment where it is “easy” to change advisors
  – But it is never easy (more on this later)
Before selecting a faculty mentor

- Talk to several potential faculty mentors
  - Even if they are not taking on new students, faculty don’t mind being approached
- Talk to students who have worked with that faculty member
- Find out how a faculty member’s former students have fared
- Consider funding consequences
  - Not all faculty have funds to support a new student
  - TAs or Fellowships may be available
- If possible, take classes from or do a project with that faculty member
Getting students started doing research: 2 extremes

• Push them off a cliff and see if they land on their feet
  – After they land, give a little redirection, and then give another big push

• Teach them how to rappel first
  – Start out with a “relatively” well-defined task
  – Discuss the problems that arise and encourage them to think of solutions
  – Help direct their search for solutions
  – Revisit the task and view it from a larger perspective, widen the problem and repeat
    • provide less guidance with each iteration
2 extremes

• What seems like approach #2 to the faculty member, might seem like approach #1 to the student
  – If you are stuck, try to break the problem down into sub pieces
  – Ask if the decomposition seems appropriate and then agree on the sub piece to tackle next
  – Repeat as necessary

• Basically, turning approach #1 into approach #2
  – A well-known problem solving technique

  • **Divide and Conquer!**
Meeting with your faculty advisor

- Meet regularly!
- Bring work products to review
- Review accomplishments since last meeting
  - **New** definitions, classifications, related work, understandings, progress on infrastructure, experiments, proposed solutions ….
- Discuss problems and alternatives
  - Show explicit examples
Meeting with your faculty advisor (continued)

• Organize your progress so far
  – Major components of a problem
  – Current approaches
  – Issues that need to be addressed
  – Alternative research directions
  – Maintain as a powerpoint presentation

• Review it with your advisor
  – Provides something tangible to review
  – Helps expose misunderstandings/disagreements

• Consider this an evolving document
Meeting with your faculty advisor (continued)

• Agree on what is to be accomplished next
  – Propose next steps
  – Revise accordingly
• e.g., too ambitious, too limited, pursue some intermediate steps or totally new direction
  – Discuss goals for next meeting (or next few meetings)
Longer term planning

• Complement short term, *tactical* planning with periodic, longer term *strategic* planning
  – Discuss longer term goals and strategies for achieving those goals
• Review your overall progress
  – Ask if you are making adequate progress
  – Discuss your strengths and weaknesses
    • How can you build on your strengths
    • How can you address your weaknesses
Keep an electronic notebook

- Progress to date
- Agreed on plans
- Questions for the meeting
- References to track down
- Potential future directions to pursue
  - (Future Research Ideas: review and reorganize regularly)
Meeting with your faculty advisor: Be assertive

• Develop your ideas and propose solutions
  – If you advisor disagrees, try to understand why
  – If you don’t understand why, try to gather evidence to support your theory
  – If it still looks promising, try again to present your ideas
  • If your advisor still disagrees, ask for advice on how to learn more or what you need to do to make a convincing case

• You are ready to graduate when you start to win most of these arguments!
Lori Pollock in one Slide

Lori Pollock, Alumni Distinguished Professor, University of Delaware

- PhD University of Pittsburgh 1986
- Rice University 1986-1989
- University of Delaware 1990-present
- Sabbatical consulting: ABB Inc & Army Research Lab

- **Research** in Software Engineering,
- Optimizing Compilers, CS Education

- **Service**
- CRA-W
- CS10K Partner4CS in Delaware
- WeC4Communities
- Comp Thinking in University Gen Ed

- **For Fun**
- Outdoor activities, handcrafts, traveling
Checklist of Conversations

✓ Courses
  ✓ Balance breath and depth
  ✓ Outstanding and poor teachers
✓ Guidance in finding promising research topic(s)
✓ How to conduct research
✓ How to review and evaluate the literature
✓ How to communicate with colleagues
  ✓ 3 and 10 minute elevator talks
Checklist continues...

✓ Prepping for presentations
  ✓ Agree on outline first
  ✓ Review slides
  ✓ Practice talk(s)

✓ How to write-up results for a paper
  ✓ Agree on outline first

✓ What to publish and where

✓ How to be successful in grants
Checklist goes on...

✓ Professional behavior
✓ Ethical expectations
  ✓ Authorship, conflict of interest, duplicate submissions, resubmissions, etc.
✓ Determining your career goals
  ✓ E.g., gov’t/industrial lab, teaching college, research university
  ✓ How to position yourself to achieve your goals
  ✓ Matching your thesis to your goals
✓ How to look for and find a job
✓ Balancing life and career after graduation
✓ …
What if advisor-advisee relationship isn’t working?

1) Encourage your advisor to be the kind of mentor you need
   - Ask for the support that you need. For example:
     • If asked to write a draft of a paper, first send an outline and ask for feedback
     • Initiate a discussion about career options
     • Ask for a meeting to discuss longer term goals and past progress

2) Stick with your advisor, but look for mentors elsewhere
   - Best if your thesis advisor is your mentor, but if that is not the case, find other mentors
   - Always preferable to have more than one mentor
What if it (still) isn’t working?

3) Have a meeting with your advisor to discuss the situation
   - Usually everyone realizes there is a problem
   - Agree on some alternative approaches
     • Set up a “measured mile”
       – Set **clear objectives with a timeline**
       – Agree on what each of you will do
       – Evaluate how it went
What if it (STILL) isn’t working?

4) Jump ship
   - Easier to do if you have not made considerable progress on a topic
   - Talk to other faculty to find out what alternatives you have
     - Don’t bad mouth your current advisor
       - “new” advisor will probably talk to your “old” advisor
     - E.g., not strongly interested in current research area; more interested in another research area; looking for a different approach to being advised
     - Check impact on funding
   - A fresh start: benefit from what you learned
What are your experiences?

• Share with your neighbor a positive and negative experience you have had with your advisor or in searching for an advisor
  – Describe what you did to make the situation better (or worse)
  – What do you wish you had done differently
When is a student finished?

• One size does not fit all
• Accomplishments will impact
  – Advisor’s letter of recommendation
  – Job choices
Lifelong relationship

- “Advisor” for life
- Always available to help with problems
- Promote (former) student’s career
  - Recommend for program committees, awards, workshops, etc.

Your job is to “train” your advisor to be a good mentor *FOR YOU*

And along the way, you will find that you have also been training yourself