

MENTORING & MANAGING STUDENTS

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Nancy Amato

PhD, U. Illinois 1995, MS Berkeley 1989

Texas A&M faculty 1995-present

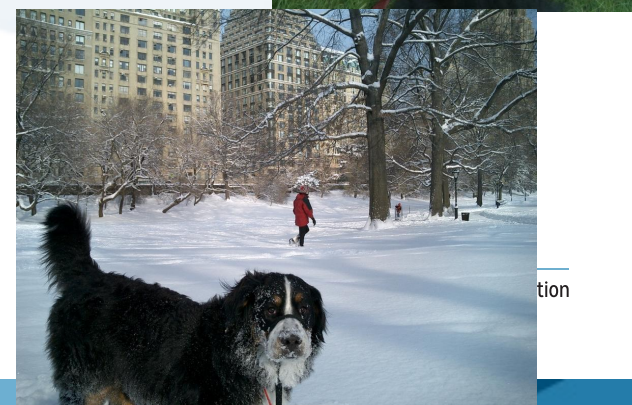
- asst 1995, assoc 2000, full 2004
- Grad Advisor, Interim Dept Head, Ombuds
- Group: 4 postdocs, 15 PhD, 4 MS, 4 ugrads, 2 high school
- Graduated 17 PhDs (7 profs, 7 research labs, 2 postdocs, 1 startup)

Research – Applied Algorithms

- Motion Planning, robotics, computational biology, computational geometry, animation
- Parallel & distributed computing, parallel algorithms, performance modeling & prediction

Non-Work Stuff

- Husband Lawrence (also CSE Prof at Texas A&M) and several dogs (sequentially)
- For fun: travel, gardening, reading, eating – last summer finally made my bucket trip to Peru & Machu Picchu!



Recruiting, Mentoring & Promoting Students

- Recruiting good students
 - make offers to top applicants (TA from dept, RA, share with dept)
 - Offer grad level reading courses (as overload if necessary)
 - undergrad (summer) research programs
 - Have initial trial period (on both sides) and see them “in action” first
- Mentoring your students
 - Make sure expectations are clear, require regular meetings/reports, and spend time early on to get going (hard to undo bad habits)
 - Use internships & short visits help them find/refine research problems and build a network as grad students
 - Practice student advising - ugrads & junior grad students
 - TA as a graduate student – even if takes time from research
- Promoting your students (current & grads!)
 - Nominate for awards & advertise successes of students & alumni
 - Send senior students on talk tours to give them practice and increase visibility (and external letters) for job search
 - Suggest them for Program Committees, NSF review panels, reviews – this increases their visibility & softens your Nos....

Three S's of Mentoring & Management

- **Style**

- You need to understand what works for you and then work to develop practices that fit you and your institution
- This will change over time as the time as you collect more activities and the size and structure of your group changes

- **Standards**

- Make expectations clear from the outset & remind them periodically
 - I have an “expectations” document posted in group intranet that covers publication goals, seminar attendance, group service, group mentoring

- **Structure**

- Group structure
 - Group & subgroup meetings
 - office hours for my students only
 - mentoring hierarchy: Postdocs, sr. grad, jr. grad, ugrads (K-12)
- Set regular goals and milestones & review regularly
 - Research goals should be both short (weeks/months) and long term (semesters/years)
 - Weekly reports by email (started during sabbatical and kept)
 - Discuss career goals with each student & review each semester



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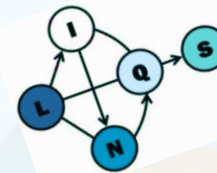


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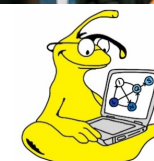
PhD, Stanford 2001, MS UC Berkeley 1989

Industry experience: NASA, MSR, Aion

University of Maryland, College Park faculty 2001-2013

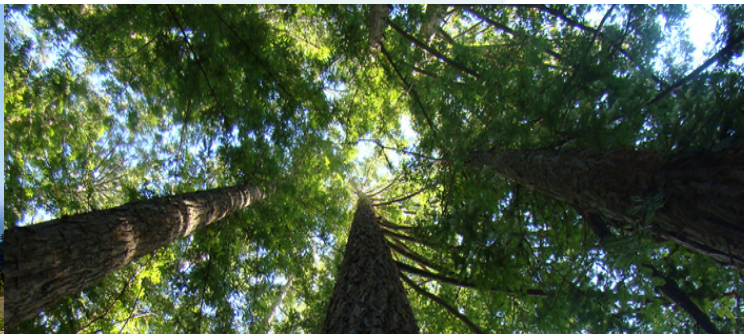
University of California, Santa Cruz 2013-present

- Director, D³ Center of Excellence for Data Science Research
- Group: 1 postdoc, 7 PhD, 2 MS
- Graduated 13 PhDs, 5 postdocs (4 profs, 9 research labs, 3 postdocs, 2 industry)



Research

- Machine Learning & AI: statistical/probabilistic modeling and logic/structure/graphs, causal modeling
- Data management: probabilistic databases, data integration, entity resolution
- Visual Analytics: active learning and info vis for graph analytic tasks
- Application areas: social network analysis, natural language processing, computer vision, computational biology, computational social science



Recruiting, Mentoring & Promoting Students

- Recruiting
 - Strategies vary depending on institution (student quality, when advisor/student commitment is made, etc.). Talk to your colleagues.
 - Know how to read files
 - Make personal contact with students before committing, and in order to have highest recruiting success
 - Establish pipeline (by school, country, research area)
 - Your students are often best recruiters for your group!
- Research and Mentoring
 - Selecting research focus and problems
 - Must match my interests and fit my research agenda
 - Varies by student aptitude and experience how much they set the direction
 - Every student is different, you have to figure out what works for each, be adaptable
 - Have high expectations and high standards
- Promoting
 - Discuss career goals with your students early on and regularly.
 - Their goals will evolve. Try to plan a path for them that will be flexible
 - Encourage them to get to know students in other research groups



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Three S's of Mentoring & Management

- **Style**
 - Know your personal style
 - Collaborative
 - Prefer small group interactions
- **Standards**
 - Student/Advisor expectations document
 - Weekly Report
 - Manage quality of papers, presentations, and internships
- **Structure**
 - Fluid, collaborations in varying pairs, within group and outside group
 - Postdocs, senior students, junior students



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YOUR TURN



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Three S's of Management & Mentoring

- Take 5 minutes and write down your three S's of Management & Mentoring:
 - What is your *Style*?
 - What are your *Standards*?
 - What is your *Structure*?



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Three S's of Management & Mentoring

- Now, pair up and take 6 minutes (3 minutes each) and explain your three S's of Management & Mentoring to your partner
 - What is your *Style*?
 - What are your *Standards*?
 - What is your *Structure*?



SOME TIPS AND Q& A

Nancy's Tips & Lessons Learned

- Students are not interchangeable.....
 - A free student is not always a good thing
 - A bad student is worse than no student – cut losses early
 - Advisorless students are often advisorless for a reason
 - Don't take on too many MS students
- Undergraduates can be a good source of grad students
 - Most institutions have at least some excellent ugrads
 - Some will go onto grad school elsewhere, but some will want to stay – both are good for you
- Don't persist if things don't work
 - Don't be afraid to let students go; encourage/help them find another advisor – it will be best for you, them & your group
- Remember: Students are the reason there are universities and there is nothing more rewarding than watching the successes of your students



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Lise's Tips

- Don't take on too many students
 - Especially early on!
- Give yourself a break
 - You **will** make mistakes, view them as learning experiences
- Healthy mentoring relationships have clear boundaries
 - Don't get involved in your student's personal problems
- Work to create a healthy group, sum is greater than the parts
- Value your students
 - Working with students is one of the best parts about being a faculty member, make it clear to your students that you value them!



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Q&A Time

Potential Questions: Advising Challenges

- Balancing training students & publishing for tenure
- Dealing with poor writing without completely rewriting the paper yourself
- Slow progress
- Focus on engineering and missing the research
- Advising students with low confidence
- Dealing with sloppy empirical work
- When & how to cut a student loose
- ...



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THANKS!