Session 3: Process for PhD Application and Decision

Thursday, October 7 (7pm ET)
Speaker Introductions

Lori A. Clarke
Emerita Professor
University of Massachusetts Amherst
Research Interests: Software engineering, medical safety

Dorian C. Arnold
Associate Professor
Emory University
Research Interests: Distributed Systems, High Performance Computing, Fault-Tolerance, Middleware and Software Tools
Learning Objectives

- Identify what you want in a PhD program
- Identify potentially suitable programs
  - Select target programs
- Understand the admissions process
- Decide between admission offers
The PhD Apprenticeship

The PhD is primarily a research apprenticeship under a formal advisor

- A novel, individualized experience
- Programs should align with your career goals
  - Interested in teaching? Are there opportunities for grad student teaching and teaching-related professional development?
  - Interested in industry? Are internships encouraged? Where do students typically go for internships?
  - Interested in research? Does the program have the relevant and necessary resources and faculty to support your research interests?
Finding the Right Program for You: Understanding Yourself, Your Needs/Wants

● What are your (potential) research interests?

● What are your post-graduate aspirations?
  ○ Do you want to pursue a teaching, research, government, or industrial or entrepreneurial career?

● What is your level of academic/professional preparedness? How can preparedness gaps be treated within the program?
Identifying (Potential) Research Areas of Interest

- Stated interests are not a final commitment **BUT** impact:
  - admission committee’s view of your “fit”
  - faculty that review your application
  - faculty that consider you to participate in their research
- Identify one to two (or at most three) interest areas
- Consider your interests and strengths
  - E.g. developing systems or methods, experimental design, theoretical or analytical foundations, case studies
Research Interests: Definitive v.s. Unsure

- Some programs expect applicants to have definitive research interests
  - May admit students to work with a specific professor
- Students may change areas after more exposure to research/other areas
- Some programs accommodate switching areas better than others
  - May admit students more holistically to the program
  - May have infrastructure to support student transitions
- Having a 3 year Fellowship gives you flexibility to take some time to find the right research area and the right advisor for you
Career Goals May Impact Your Decisions about Research Areas and Programs of Interest

- **PhD career opportunities** (covered in session 1)
  - Industrial or national laboratory positions (research, development, or entrepreneurial oriented)
  - Academic positions (research or teaching oriented)
Considering Career Goals  
(A 1-Minute Exercise)

What are your long-term career goals?

● How do you plan to prepare for that career choice while in graduate school?

● If unsure, what can you do while in graduate school to help you decide?
Factors to Consider: Collective and Individual Enterprises

Collective View: Program, Department & Institution
- Research foci
- Faculty size
- Reputation
- Student life/academic culture
- Financial support
- Location

Individual View: Faculty & Labs
- Student engagement/success
- Publication Impact
- Collaborative network
- Industry engagement
- Funding
Finding Programs: Searching By Programs

- Popular reputation-based program rankings:
  - National Research Council (updated 2010)

- Popular metric-based program ranking by area:
  - CSRankings by Emery Berger (UMass): based on publications in selective venues.

Take all rankings with a grain of salt: include your own homework for your research area(s).
### CSRankings: Computer Science Rankings

CSRankings is a metrics-based ranking of top computer science institutions around the world. Click on a triangle (►) to expand areas or institutions. Click on a name to go to a faculty member’s home page. Click on a pie (the after a name or institution) to see their publication profile as a pie chart. Click on a Google Scholar icon (✓) to see publications, and click on the DBLP logo (➔) to go to a DBLP entry. Consider sponsoring CSRankings.

### Applying to grad school? Read this first.

#### Rank institutions in USA by publications from 2011 to 2021

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<th>Institution</th>
<th>Count</th>
<th>Faculty</th>
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Finding Programs: Searching By Faculty

Considering faculty in your areas of interest

• Who is publishing in the high impact venues?
• Who is serving on the editorial boards or program committees for these venues?
• Who is receiving awards and other recognitions e.g. Best paper awards, Industrial Fellowships, SIG awards
• Who is receiving funding to work in these areas?
Computer Science Publishing

- CS researchers primarily target conference publications
- Conference (and journal) quality/selectivity vary greatly
- Learn about publication venues in your areas from:
  - Mentors, coaches, letter writers, etc.
  - Impact factors, acceptance rates, h-indexes, etc.
  - Conference rankings
Understanding Different Faculty Positions

● Tenured/Tenure-track Faculty
  ○ Assistant Professor: untenured, typically a 7-year clock
  ○ Associate Professor: tenured
  ○ (Full) Professor: typically 4-12 years after promotion to associate
  ○ Distinguished ranks: Chaired/Distinguished/Endowed Professor

● Teaching-focused Faculty
  ○ Promotion pathway: Assistant/Associate/Full Teaching Professor
  ○ Typically not tenure-track (long-term contracts)
  ○ Lecturer, Instructor terminology also used by some institutions
Understanding Different Academic Research Positions

● Post Doc
  ○ 1-3 year research position with a Faculty Advisor
  ○ Externally funded (e.g., NSF, CI Fellows) or funded by advisor

● Research Faculty
  ○ Research Scientist, Research Professor (with academic rank)
  ○ Grant-funded, no tenure
Factoring Financial Support

Most CS PhD programs support all admitted students

- **Research and Teaching Assistantships** (RAs/TAs)
  - ~20 hrs/wk assisting a class or supervised research
  - continuous support (assuming good progress)

- **Fellowships**: provide “independent” funding, but fellows should associate with a research lab/project

  "Your 3-year NSF fellowship is a definite advantage"
Breakout: What constitutes Good Programs and Mentors?

Each group should select and discuss a question or two and and pick someone to report back

Leading questions:
1. What have you learned from your work experiences that might help you evaluate program/mentor strengths and fits?
2. What are pros/cons of an advisor who is a well-established senior faculty vs a more junior faculty?
3. What are the pros and cons of joining a program with only a single faculty member that you are interested in working with?
4. How might a faculty member’s funding profile matter?
5. How might the size, demographics and composition of a research lab/program/department matter?
6. What are some important characteristics of programs/mentors that we did not discuss or present?
The PhD Admissions Process
Typical Admission Processes

- Undergraduates admitted by School’s Admissions Office

- **Graduate students admitted by program/department** (with graduate school oversight)

- Graduate program admissions committee:
  - Compiles and reviews applicant portfolios
  - **Faculty often champion strong students in their areas**
    - Faculty may conduct remote or in-person interviews (e.g., at a conference)
  - Some departments invite applicants to visit before making decisions, but most wait until after decisions are made

- Admitted applicant decisions typically expected by April 15th
How many Applications to Submit?

• Acceptance depends on many factors, including
  • program faculty mentoring and funding capacities
  • number of competitive applicants (in a particular area)
  • … and the strength of your portfolio
• Strong applicants still may be declined
• Apply to 8-12 programs, based on your estimated chances of acceptance, e.g.:
  • Two "Very Good" chance programs
  • Three “Good” chance programs
  • Three “Moderate” chance programs

Consult your letter writers and coach. Listen to them!
Contacting Potential Advisors

- Often, applicants accepted if faculty commits to fund or advise

- Reach out with specifics: Do your homework!
  - Are you familiar with their recent research activities?
  - Have you reviewed samples of their papers or presentations?
  - What related work might you like to do?
  - **Not:** Dear X, I am very interested in your research area…

- Request a meeting, e.g. at a future conference or via video chat
- If letter writers know faculty of interest, ask them to make contact and advocate for you
Campus Visits 
(Winter/early Spring semester)

Go on Campus Visits!

- Many schools invite applicants for a campus visit
- Make use of it (often free) and meet people and see the department!
- If you get too many invitations, prioritize based on your factors. Ask your coach for guidance

Campus Visit Checklist

- Book your accommodations through the university (if possible)
- Set up meetings with faculty and grad student staff
- Ask to meet with Ph.D. students
- If you have special needs, meet with the appropriate campus office
- Inform yourself about the department before the visit
Meetings with Faculty in your Area(s)

- What projects are in their current/near term agenda?
- How do they integrate new students into their lab?
- How often do they meet students, individually/in groups?
- Do they expect to be taking on new students?
- What is the departmental culture?
- Explain your NSF Fellowship: support for the first 3 years but will need support for final 2-3 years
Meetings with Program Director and Support Staff

• What are the PhD requirements and expected timeline?

• What is the typical semester course load?

• What happens when a student has difficulty finding an advisor/funding?
Meetings with Graduate Students

• Find out about the culture within the department and their labs
  • Academic environment
  • Support for interdisciplinary work
  • Mentoring styles
  • Professional development
  • Career support (internships and initial positions)
  • Social environment

• Living situation
  • Cost of living
  • Quality of life
Deciding Between Admissions Offers
Revisit the Factors You Previously Considered

Collective View: Program, Department & Institution

- Research foci
- Faculty size
- Reputation
- Student life/academic culture
- Financial support
- Location

Individual View: Faculty & Labs

- Student engagement/success
- Publication Impact
- Collaborative network
- Industry engagement
- Funding
Thank You’s and Regrets

• Send a note of appreciation to every person (faculty, staff or student) who notably interacted with you

• Ask faculty any outstanding questions
  • When will they expect to know if they are interested and able to accept you into their lab?
  • Provide feedback if you have made some firm decisions
    ● would definitely accept if you receive an offer
    ● would be very interested if you receive an offer
    ● enjoyed your visit and look forward to hearing from them
    ● enjoyed your visit, but have decided to accept another offer

• Always be honest!
  • It is a small world. You will see many of these people again and again

• Once you accept an offer, let other departments know asap
Finally, **Document Your Efforts**

- Each program you investigated or plan to investigate
  - Summarize the important information
    - pros and cons, size, ...
- For each program, which faculty look like potential advisors
  - Summarize the important information
    - pros and cons, research areas, productivity
- For each potential advisor
  - Relevant info about their research areas, productivity, funding, etc.
- Status of your application
  - Accepted/Not accepted/Didn’t apply; visit plans
- Recommend a spreadsheet that you share with your coach
Questions?
Next Week...

“Panel 1: What I Wish I Would Have Known Before Applying”
Thursday, October 14 @ 7PM EST