

# Academic Career Paths & Job Search

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# Expectations of Academic Positions

- **Research**
  - Engage in scientific discovery, involve graduate and undergraduate students, fund research
- **Teaching**
  - active teaching, mentoring, advising
- **Administration/Service**
  - Chair, serve on committees, etc.
  - Departmental, school/college, university, professional



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# Types of Colleges/Universities

Type	Degree Program	Main Emphasis	Important
Research universities	Ph.D.	Research	Teaching & Service
Colleges/ universities	M.S.	Teaching	Research & Service
Selective Liberal Arts Colleges	B.S., B.A.	Teaching & Scholarship	Service & Research
Undergrad oriented	B.S., B.A.	Teaching & Service	Research



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# Institutional Expectations May Differ

## Research-Focused

60%-80% Research

10%-35% Teaching

5% - 10% Service

## Teaching-Focused

50%-80% Teaching

10%-30% Professional Development/Scholarship

10%-20% Service



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# Small Group Discussion

- Think about research and teaching activities
  - What do you think you would like about a research position?
  - What do you think you would like about a teaching position?



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# Remainder of Presentation

- Research University Positions
- Teaching-focused Positions
- Job Search



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# Research University Positions

## My Journey in Academia - Mary Lou Soffa

- Assistant Professor - University of Pittsburgh
- Associate and Full Professor - University of Pittsburgh
- Dean of Graduate Program in Arts and Sciences - University of Pittsburgh
- Department Chair, University of Virginia
- Owen R. Cheatham Professor, University of Virginia
- Professor, University of Virginia

Graduated 32 Ph.D. students, half are women

Lori Pollock, Jodi Tims

Research Interests: Compilers/optimizations,  
Software Engineering, Software Systems,  
Architecture, Cloud Computing



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# Research Expectations: Research University

- **Publications** - journal, conferences, workshop (focus on top peer-reviewed venues)
- **Funding** to support research group and summer salary (peer-reviewed, basic vs. applied, grant vs. industry)
- **Graduate student mentoring** (and their professional success)
- **Reputation** and **Impact**
  - Higher in rank: more visibility and international reputation - invited talks, conference or., journal editor/ed. boards, professional org roles
- Maybe:
  - MS/Undergraduate research mentoring
  - Patents, software artifacts,...



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# Teaching: Research University

- Teaching **load**: typically 1:1 to 1:2
- Mix of undergrad and grad courses
- Teaching assistants for grading, office hours, and overall course management help
- **Promotion and tenure: Good research essential, good teaching useful**
- **But: you'll be teaching for years - worth it to yourself to do a good job**



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# Service Expectations: Research University

## Committees and educational/administrative activities

- Department
- School
- University

## External Professional Service

- Program committees
- Funding panels
- Professional society involvement
- Journal editorship; program chair, conference organization

**Higher in rank** - more external service

**Pre-tenure:** Favor research-oriented service

**Be selective:** choose roles that are important where you can engage - “power” committees



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# Gaining the Necessary Skills

## Graduate School!

### Research

apprenticeship - learn from adviser, doing it, and others

How do ideas come?

How to organize research?

### Teaching

Teaching experience, teaching even if don't have to

### Service

Organizing student organizations/support groups-

Women in CS

Working on department committees

Volunteering at conferences



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# Challenges

**Balancing** the three roles - same as in graduate school

- **All three can be infinite sinks**
- **Should not spend all time on one**

**Networking** - forcing yourself to talk to strangers

**Pressure** of tenure and promotions



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# Rewards

- Love of research and **freedom** to do research that you want
- Working on research with **graduate students**
- Involving undergraduates in research
- Making **friends** across the world
- **Variety** and **flexibility** of work
- Creating the kind of career that you want - independent (as long as meet expectations)



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# Some Advice: pre-tenure years

- Find mentors and professional cohorts
- Collaborate if you can
- Learn to say no politely and suggest alternative
- Prioritize!! Especially in research.
- Choose your teaching and service assignments well.
- Enjoy your work and colleagues!!



# My Journey in a Research-Focused Career

- Academic Background
- Faculty experience
- Lessons learned



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# Postdocs

## **Continue research with another mentor**

more papers, etc

a new field

## **Funding**

Fellowship you apply OR university/department

OR professor research grants

## **Best-case Scenario**

1-2 years, good mentor, high-ranked school that  
will help you transition to the academic position  
you want



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# Challenges of Postdocs

Low pay (compared to faculty, industry)

Role in the university

- Not a student, but not faculty

- Depending on school, can feel isolated

May not have independence

- working on PI's grant

If you have family, can be difficult to move for a temp position



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# Research Scientist

No tenure

“Soft money” - grant writing!

Less requirements (service, teaching)

Can focus on research

Dependent on PI

Hired to get things done for grant

Not independent

Need a good advocate, well-funded lab

Possibly easier work/life balance



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# Teaching-focused Positions

# Type of Teaching-Focused Positions

- **Small College/University**
  - Professor with tenure
  - Lecturer/term faculty
  - Professor of the practice
- **Research University**
  - Variety of types/titles
  - Teaching Professor
    - Professor of the Practice, Clinical Professor, Lecturers with SOE (CA)
  - Lecturer/Senior Lecturer



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# Expectations of Teaching-Focused Positions

- Primary workload is teaching
  - 2-5 classes per semester
  - Significant office hours expected
  - Wide variety of courses at all levels
  - Advising may be required
- Scholarship/professional development
  - Mentoring undergraduate research
  - Remaining current in technical and pedagogical aspects of the discipline
- Service
  - Department - curriculum, outreach, meetings
    - Administrative for tenured faculty
  - Campus-wide - committees



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# Research at Teaching Universities

- Financial support is limited
  - May be startup funds or small institutional grants
  - Typically small or no budget for student support
- Release from teaching is not guaranteed
  - May get load credit for research mentoring
  - Some have summer research programs
- Utilizing undergraduate research programs helps
  - CRA-W DREU and CREU programs
  - REU programs through NSF

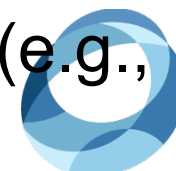


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# Preparing for Teaching-Focused Career

- Take every opportunity to gain relevant experience
  - TA positions
  - Instructor of record for one or more courses (often possible at lower levels)
  - Programming through teaching center
  - Ask for written evaluation of teaching from peers/mentors
- Don't ignore scholarship
  - Know how your research interests can involve undergraduates
  - Engage in the educational community (e.g., SIGCSE)



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# Challenges of Teaching-Focused Career

- Student demands can be very high
- Finding time for scholarship/research
- Finding collaborators for research
- Over-involvement in service
- Infrastructure (computer services, grant administration, etc.) may be more limited
- Perceptions of prestige
- Salary differential



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# Rewards of Teaching-Focused Career

- Student/alumni relationships run deep
- Colleague relationships extend across the university - fosters interdisciplinary work
- Opportunities for departmental and university leadership
- Usually more options for shaping workload
- May better align with personal goals/interest



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# My Journey in a Teaching-Focused Career

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# Job Search

# About My Journey

What did  
your  
postdoc  
do for  
you?

Applied for faculty positions 2008-2009

PhD in 2009

Postdoctoral Fellowship

Applied for faculty positions 2009-2010

Negotiated offer and late start

Start in January 2011 as Assistant Professor

6 search committees....

June 2017 Associate Professor

How did  
you decide  
on  
academia?

Did you  
make  
the right  
choice?



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# Faculty Positions-- By the Numbers

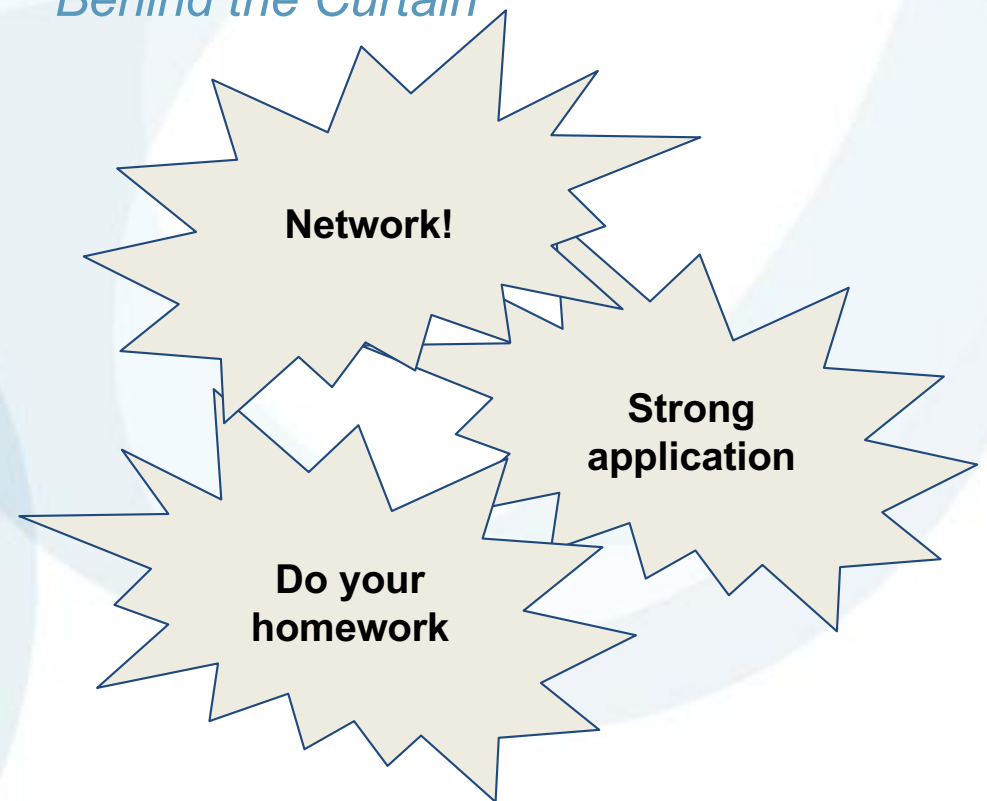
Hiring for a single position can bring in hundreds of applications

Phone interviews can be some small percentage of all applicants

About six to eight applicants brought to campus for interviews

One offer made to top interviewee

*Behind the Curtain*




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# Faculty Job Application Documents

- Cover Letter
- Research Statement
- Teaching Statement
- CV
- Reference Letters

**Pages of online forms!**



**It takes  
longer than  
you think!**



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# Cover Letter

## *Standard Information*

- Name
- Current position
- Position you are applying for
- A few of your accomplishments

## *Behind the Curtain*

- It's one of the less important documents
  - Make it neat, but don't sweat it!
- Demonstrate your interest in the school/position



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# Research Statement

## *Standard Information*

- Generally two pages
- General field and topic of your research
- More specifics about what you have contributed to the field
- Use self-citations to backup these contributions
- Cover what your next directions will be for your work

## *Behind the Curtain*

- This will be read by experts in your area and non-experts
- Trying to assess if your work will be a good fit to our department
  - Does your area strengthen our current areas?
  - Teaching- Can undergraduates participate?
  - Research- Is this a good area for funding, future work?



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# Teaching Statement

## *Standard Information*

- Generally two pages
- Introduce your teaching philosophy
- Relate your teaching-based activities to your philosophy  
What concrete activities have you done that backs up your philosophy?
- Teaching-based activity:
  - Teaching
  - TA
  - Student Mentoring

## *Behind the Curtain*

- In our field, the specific philosophy isn't that important
- What is important is Thoughtfulness!
- In research schools, less consideration is given to the teaching statement
- It is best if you can be helpful to the department



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# CV

## *Standard Information*

- Standard resume information
- Awards and Honors
- Publications with full citations
- Service

## *Behind the Curtain*

- Make sure you have a contact buffer

What we look for (in a glance):

- Holes in education/employment
- Classes to teach
- Number and quality of pubs (by type)



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# Reference Letters

## *Standard Information*

- 3-4 letters
- Writers must address your skills for the position
- Writers have freedom:
  - Can discuss timeline gaps

## *Behind the Curtain*

- This is one of the most critical components of your application!
- Some tips:
  - Academics typically know how to write these
  - Letters from the same writer for two applicants can be compared
  - Help your writers!



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# After the Faculty Application

- Phone Interview
  - Typically one hour
  - Typically with Chair or Search Committee
- In person interview and talk
  - 1-1.5 long day(s) (breakfast to dinner)
  - 45-55 min research talk
    - Specialists and non-specialists
    - Don't go over
    - Lots of questions
  - Meetings with: Chair, faculty, dean, other departments, etc.
- Offer and negotiation

## *Hints*

- After all applications are out, start working on your talk early!
- Get help along the way!
- Feel free to run to the bathroom!



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# Postdoc Applications

- Usually a two year position
- Think about what you want to do:
  - very similar to what you do
  - something that extends your current work
- Talk to people
  - your advisor
  - faculty in your area
  - postdocs in your area
- Interview process usually informal: emailed CV, in person visit with talk

## *Behind the Curtain*

- It's easier to get a postdoc than most people think.

We love postdocs!
- Use them to:
  - Move to a more prestigious institution
  - Move to a different area
  - Get skills you didn't have before



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# Where to Find Job Listings

CRA: <http://cra.org/ads/>

ACM: <https://jobs.acm.org/>

IEEE: <http://careers.ieee.org/>

Chronicle of Higher Ed: [https://chroniclevitae.com/job\\_search/](https://chroniclevitae.com/job_search/)

Listserves, e.g. Robotics Worldwide



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# Resources

Thanks to prior Grad Cohort speakers for these resources

## **CRA-W Career Mentoring Workshops:**

<https://cra.org/career-mentoring-workshop/>

## **On Academic Life:**

<http://blogs.scientificamerican.com/guest-blog/2013/07/21/the-awesomest-7-year-postdoc-or-how-i-learned-to-stop-worrying-and-love-the-tenure-track-faculty-life/>

<http://dynamicecology.wordpress.com/2014/02/04/you-do-not-need-to-work-80-hours-a-week-to-succeed-in-academia/>

## **On Post-Docs:**

[http://cra.org/resources/bp-view/best\\_practices\\_memo\\_computer\\_science\\_postdocs\\_best\\_practices/](http://cra.org/resources/bp-view/best_practices_memo_computer_science_postdocs_best_practices/)

## **Tips on doing an academic job search:**

<http://matt.might.net/articles/advice-for-academic-job-hunt/>

<https://homes.cs.washington.edu/~mernst/advice/academic-job.html>



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