

Ph.D. Academic Career Paths, Job Search, and Job Interviews

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Outline

- Introductions
- Academic Positions
 - Research Focused Positions
 - Teaching Focused-Positions
- Job Search



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ELECTRICAL ENGINEERING & COMPUTER SCIENCES

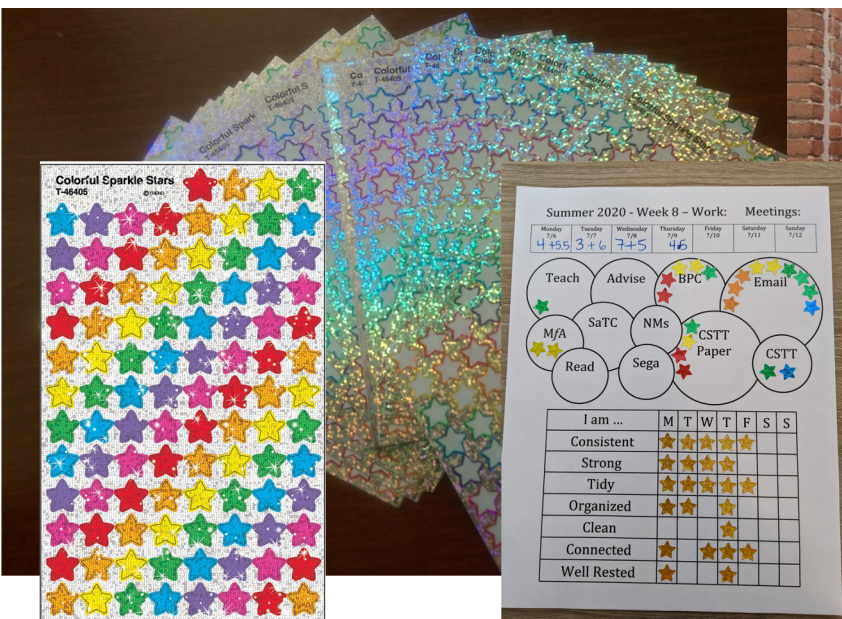


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ELECTRICAL ENGINEERING & COMPUTER SCIENCES

Berkeley
UNIVERSITY OF CALIFORNIA
Graduate
School of
Education



UNIVERSITY OF
ILLINOIS
URBANA - CHAMPAIGN



About Dilma - work

NOW



Since 2014: **Professor**

Also many administrative roles:

department head, associate dean, interim director of two centers

BEFORE



Principal Engineer & Manager
Qualcomm Research
2 years



Researcher; Manager
IBM T.J. Watson Research Center
12 years



Assistant Professor
University of São Paulo, Brazil
1996-2000

EDUCATION



PhD
Georgia Tech



BS, MS in Computer Science
University of São Paulo, Brazil

RESEARCH AREAS

Distributed Systems, Operating Systems,
Cybersecurity, CS education, Data Science



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About Dilma – fun



“I declare after all
there is no
enjoyment like
Reading!”

How much sooner
one tires of
any thing
than of a book!”

Jane Austen



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Academic Positions



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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



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Expectations of Academic Positions

- Administration/Service
 - Internal – Dept, school/college, university
 - Committee service - admissions
 - Grad advisor
 - Chair, Director of Graduate/Undergrad Studies
 - External
 - Professional societies
 - Government Agencies
 - Outreach



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Types of Institutions & Positions

Type	Degrees offered	Primary	Important
Research universities	Ph.D.	Research	Teaching & Service
		Teaching	Scholarship/Research & Service
Colleges/ universities	M.S.	Teaching	Research & Service
Selective Liberal Arts Colleges	B.S., B.A.	Teaching	Scholarship/Research & Service
Undergrad oriented	B.S., B.A.	Teaching	Service & Research



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Institutional Expectations Differ!

- Research-Focused Positions
 - 50%-80% Research
 - 10%-40% Teaching
 - 5%-10% Service
- Teaching-Focused Positions
 - 50%-80% Teaching
 - 10%-30% Professional Development/Scholarship
 - 5%-20% Service



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Academic Research-Focused Positions



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Research Focused: Research Expectations

- Publications – journal, conferences, workshops
- Funding to support research group and summer salary
- Graduate student mentoring (and their success)
- Reputation and Impact
 - Higher in rank: more visibility and international reputation – invited talks, conference or journal editor/boards, professional or roles
 - Maybe:
 - MS/Undergraduate research mentoring
 - Patents, software artifacts



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Research Focused: Teaching Expectations

- Teaching load: typically 1:1 to 1:2
- Mix of undergrad and grad courses
- Teaching assistants for grading and course help
- Promotion and Tenure:
 - Good/Excellent research required
 - Good teaching required (poor teaching unacceptable)
- Remember
 - Teaching & students are why we are in academia
 - Everyone can learn to be a good/competent instructor



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Research Focus: Service Expectations

- Be selective: chose roles where you can have impact and engage – “power” committees
- Pre-tenure: prioritize service with research goals
- As you progress, more opportunities
- Internal: grad admissions, faculty search, fellow/leadership training opportunities
- External: Program committees, Funding panels, Professional society involvement, organize workshops



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Gaining Skills in Graduate School

- Research
 - Apprenticeship – learn from advisor and others
 - How do ideas come? How to organize research?
- Teaching
 - Teaching experience (TA)
- Service
 - Dept committees, organize student groups, volunteer at conferences



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Challenges

- Balancing the three roles – same as in grad school
 - All three can be infinite sinks
 - Should not spend all time on one
 - Remember your mentors – they can help!
- Networking – forcing yourself to talk to others
- 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 you meet expectations)



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Some Advice: pre-tenure years

- Find mentors and professional cohorts
- Choose your teaching and service so they are synergistic with your overall career plan
 - Prioritize
- Collaborate if you can
- Learn to say no politely and suggest alternative
- Enjoy your work and colleagues!!



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Academic Postdocs

Continue research with another mentor

- Expand network, stronger record, etc
- Explore 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
- Already have tenure-track position, defer start for 1-2 years



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Challenges of Academic Postdocs

- Lower 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 a family, can be difficult to move for a temporary position



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Research Faculty/Scientists

- Role is almost entirely focused on research
 - Little or no teaching and service
- No tenure: All “soft money” – grant writing
- May be dependent on another PI
- Possibly easier work/life balance



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Academic Teaching-Focused Positions



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Types 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
 - Lecturer with SOE (California)
 - Lecturer/Senior Lecturer



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Expectations of Teaching-Focused Positions

- Primary workload is teaching
 - 2-5 courses per semester
 - Significant office hours, advising
 - Wide variety of courses at all levels
- Scholarship/Professional Development
 - Mentoring undergraduate research
 - Current in technical/pedagogical aspects of discipline
- Service
 - Department – curriculum, outreach, advising
 - University – committees
 - Encouraged – conferences, professional societies



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Research at Teaching Universities

- Financial support 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 teaching credit for research mentoring (Fa/Sp/Su)
 - Many teaching positions do not offer sabbaticals
- Utilizing undergraduate research programs helps
 - CRA-WP DREU program
 - 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, summer)
 - Training by university center for teaching excellence
 - 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
 - Director of Undergraduate Studies
- May better align with personal goals/interest



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Job Search



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Faculty Positions - By the Numbers

- Hiring for a single position can bring in hundreds of applications
- Phone/Zoom interviews can be some small percentage of all applicants
- Between three to eight applicants brought to campus for interviews
- One offer made to top interviewee



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Faculty Job Application Documents

- Cover Letter
- CV
- Research Statement
- Teaching Statement
- Diversity Statement (some)
- Reference Letters
- Sometimes, online forms (extract information from your CV).
- Essay-type questions (Australia/UK)



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Cover Letter

- Customize it
 - Name of chair of search committee
 - Exact position (include reference number)
 - Name of School
- Highlight your accomplishments
- Include courses you can teach (if asked)
- Depending on teaching or research position highlight that aspect first
- Demonstrate your interest in school/position
- Proofread!



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CV

- Standard Information
 - Standard info (contact details, education, work experience)
 - Awards and Honors
 - Publications with full citations
 - Service
 - References
- What we look for (in a glance):
 - Education/employment experience
 - Number and quality of publications
 - Teaching experience



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Research Statement

- Introduction - general field/ research topic
- Different sections
 - Doctoral research (cite your work)
 - What are you currently working on? (not new grads)
 - What do you plan to work on next?
- Remember: read by experts in area and non-experts
- Assess if your work good fit with department
 - Does your area strengthen our current areas?
 - Teaching – can undergraduates participate?
 - Research – Is this a good area for funding? Future work?
- Limit to 2-3 pages



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Teaching Statement

- Introduce your teaching philosophy
- Relate your teaching activities to your philosophy
 - Concrete activities you've done related to philosophy
- Teaching-based activity
 - Teaching
 - TA
 - Student mentoring
- About 2-3 pages



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Diversity Statement

- About 1 page is common
- The prompt for the diversity statement varies, address the prompt
- Typical content:
 1. What are your experiences of advantage or disadvantage?
 2. Why is diversity, equity, and inclusion (DEI) is important to you?
 3. What you have done to learn about or promote DEI?
 4. How do you want to contribute going forward?

More advice: <http://tinyurl.com/Lewis2021-11-16>



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Reference Letters

- 3-4 letters
- Writers must address your skills for the position
- Writers have freedom: can discuss time gaps
- This is one of the most critical components of your application
- Some tips:
 - Academics typically know how to write such letters
 - 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 1 hour
 - With Chair or search committee
 - In person interview and talk
 - 1-1.5 long days (breakfast to dinner)
 - 1 hour research talk
 - Specialists and non-specialists
 - Don't go over, leave time for questions
 - Teach a course (if teaching position)
 - Meetings with: Chair, faculty, Dean, other departments
 - Offer and Negotiation
- Hints
 - Start working on your talk early!
 - Practice talk
 - Get help!
 - Feel free to run to bathroom!
 - Bring energy bars
 - Plan questions you can ask anyone!



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Postdoc Applications

- Usually a two year position
- Think about what you want to do
 - Very similar to what you do now
 - Something that extends your current work
- Talk to people
 - Your advisor, faculty in your area
 - Postdocs in your area
- Interview process usually informal, easier to get
- Use them to:
 - Move to more prestigious institution
 - Move to different area
 - Get skills you didn't have before



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Industry Research Applications

- Rolling applications
- Requires much less lead time
- Process is standardized and company specific
 - Full interview loop including a talk
- Roles are decentralized
 - Recruiters tend to be tied to specific orgs/teams, so find the team / org first



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Where to find job listings

- CRA: <http://cra.org/ads/>
 - Submit materials to CRA database
- ACM: <https://jobs.acm.org>
- IEEE: <http://careers.ieee.org>
- Chronicle of Higher Ed:
https://chroniclevitae.com/job_search/
- Teaching position? Join SIGCSE, job listserv
- Other Listservs, e.g., in your research area



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Resources

Thanks to prior grad cohort speakers

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/

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>

Tips on inclusive teaching advice:

- Lewis, C. M. (2017). Twelve tips for creating a culture that supports all students in computing. <https://doi.org/10.1145/3148524>
- Advice on writing diversity statements: <http://tinyurl.com/Lewis2021-11-16>



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Final Thoughts

Questions?



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