Academia vs Industry: Choose Your Own Adventure

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Karina Montilla Edmonds (Google)
Karina Montilla Edmonds

- Immigrated from Dominican Republic
- BS in Mechanical Engineer at University of Rhode Island
- MS, PhD at California Institute of Technology (Caltech)
- Northrop Grumman (Automotive Division for TRW)
- Jet Propulsion Laboratory (NASA, Managed by Caltech)
- Director of JPL Technology Transfer at Caltech
- US Department of Energy, under Secretary Chu (Obama Administration)
- Executive Director for Corporate Partnerships at Caltech
- Lead for University Relations at Google Cloud AI

- Mother of 3 strong, intelligent, kind daughters (17, 15 & 10)
Dilma Da Silva

Education
BS 1986 USP-Brazil / MS 1990 USP/ PhD 1997 Georgia Tech

Professional (Academia → Industry → Academia )
– Professor at USP-Brazil 1996 -2000 (tenure 2000)
– Research Scientist at IBM TJ Watson 2000-2012
  Manager since 2007; several other leadership titles
– Principal Engineer&Manager, Qualcomm Research (2012-14)
– Professor and Department Head, Texas A&M University

Personal
– 1 cats, 125+ first cousins;
– Single except for 8 years 😊
– caretaker 2010-2015
– Fun: knitting, reading, travel with people I love,
  babysitting for friends
A vs B: So Simple, Right?

**Industry** could be:
- Engineer
- Research scientist
- Eng manager
- Corporate Leadership
- Consulting
- Government
- Start-up

**Academia** could be:
- Professor at research-oriented university
- Teaching-oriented position
- Academic administration
- Research associate
Turn and Talk to Your Neighbor

What is your plan?
Industry vs Academia vs Undecided?

Why?
How do you enjoy spending your time?
What is Important to You?
Must-haves vs. Nice-to-haves?

- Stability vs. Change?
- Excelling in Your Career?
- Having Nice Things?
- Physical Fitness?
- Schedule Flexibility?
- Control of Technical Agenda?
- Supporting Others?
- Minimizing Effort vs. Being Challenged?
- Living Near Relatives?
- Having a Family?
- Visibility?
Does What You’re Doing Align With What’s Important to You?

- What you value most could change over time
- Absolutely no one is in your exact situation
- A PhD gives you options
- Be true to yourself and your values
- Don’t be afraid to course correct
Academic Careers
**Academic Career Ladder**

**Professorial Ranks**
- Assistant: Tenure-track, 5-7 years
- Associate: Usually with tenure
- Full (no set time limit to achieve)
- Chaired Professor – endowed

**Administrative Ranks**
- Department Chair/Head, Dean, Provost, President

**Instructor**
- Can vary significantly on course load
- Some roles offer tenure equivalent

**Postdoctoral/Research Associate**
- Usually on “soft money”
Traditional Professor/Instructor Roles

Research universities
  • Ph.D. program - emphasize research, funding

Teaching-oriented colleges
  • B.S. program – emphasize teaching, service

Public vs. Private
  • Impacts funding structure
What can I do now to prepare for an academic job?

• Research
  – Apprenticeship: learn from advisor, write papers, collaborate
  – Grant writing: Help out on proposals, read successful proposals
  – Corporate connections (for funding, student job placement)

• Teaching
  – Guest lectures, teaching assistantships
  – Professor-in-training programs, courses

• Service
  – Organizing student organizations/support groups – Women in CS
  – Working on department committees
  – Volunteering at conferences
Industry Research Careers
## Industry Careers

<table>
<thead>
<tr>
<th>Role</th>
<th>Visibility</th>
<th>Flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineer</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Research scientist</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Eng Manager</td>
<td>Medium (all internal)</td>
<td>Medium</td>
</tr>
<tr>
<td>Corporate leadership</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Consulting</td>
<td>Low</td>
<td>Varies/Low</td>
</tr>
<tr>
<td>Government</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Start-Up</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Same role can vary a lot from group to group
The Engineering Ladder

Implications: Pay, Expectations

8. Principal Engineer
7. Senior Staff Engineer
6. Staff Engineer
5. Senior Engineer

Up or Out within 3 Years

New PhD Grad

New BS Grad

Engineer 4

Engineer 3
Career Change
Moving Between Industry and Academia

• From University to Industry
  • Must build real systems
  • Establish visibility and knowledge in industry
  • Need to pass a technical interview (coding, complexity)

• From Industry to University
  • Must continue publishing
  • Establish visibility and reputation in research community
  • Need to pass an academic interview (presentation, strong publication record)
Our “change” stories …
All Choices are Valid!

- Do what you love
- If you don’t love what you’re doing, do something else
- A PhD gives you that option
- Take ownership of what you do now and what you want to do next
Questions ?