Academia vs Industry: Choose Your Own Adventure

Pamela Gibbs (Anita Borg Foundation)
Shaun Kane (Google Research)
Link to captions

http://bit.ly/3Q1wRV7
Presenters

Pamela Gibbs, AnitaB.org

Shaun Kane, Google Research
Summary

- Many different ways to build a career
- Consider
  - What’s available?
  - What do you enjoy doing?
  - What do you not enjoy doing?
Research Roles and Career Opportunities

- Develop New Knowledge
- Develop Novel Products and Applications
- Develop Novel Guidance
- Develop New Business
  - Education
  - Mentorship
  - Service

Academia
- Research-oriented University - Professor
- Teaching-oriented University - Professor
- Research Associate at University
- Academic Administration
  - ...

Industry
- Industry Research Labs
- Industry Development
- Agencies Labs
- Startup company
- Analysts company
- Consulting company
- Business Development
  - ...

CRA-WP
Computing Research Association
Widening Participation
Research Roles and Career Opportunities

- Develop New Knowledge
- Develop Novel Products and Applications
- Develop Novel Guidance
- Develop New Business
  - Education
  - Mentorship
  - Service

Academia
- Research-oriented University - Professor
- Teaching-oriented University - Professor
- Research Associate at University
- Academic Administration
  - ....

Industry
- Industry Research
- Industry Development
- Agencies Labs
- Startup company
- Analysts company
- Consulting company
- Business Development
  - ....

A vs B: So Simple, Right?
Turn and Talk to Your Neighbor

**What** is your current plan/perspective?  
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?
- Control of Technical Agenda?
- Supporting Others?
- Minimizing Effort vs. Being Challenged?
- Living Near Relatives?
- Having a Family?
- Schedule Flexibility?
- 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, research with undergrads

- **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 Research Career Opportunities

- Very broad spectrum of appealing Research Career Opportunities across industry
  - Industry labs, Government labs, Research Foundations
  - Startups, Industry product development labs
  - Analysts, Consulting, Business Development

- Very broad range of research institutions across all areas of human activity

- Flexibility to move across institutions and across areas
  - Expertise acquired in one area may be very useful on another
Research Opportunities in Industry

- Main goal: development of novel products and applications
- Broad range of technical scope, depending on industry
- Broad time frame for achieving results
  - From next-generation product (1-2 years)
  - ... to fundamental research years ahead of a product
- Research efforts guided by industry strategic directions
- Range of contributions:
  - Product/application, intellectual property, patents
  - Journal and conference papers, technical reports, blogs
  - Societal impact
  - Collaborations with other research institutions
### Example: Industry Career Path Progression

<table>
<thead>
<tr>
<th>Career Level</th>
<th>Contribution</th>
<th>Expertise/Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO/CTO</td>
<td>Business or technical leader, strategic decision maker</td>
<td>Business and technical strategy, visionary</td>
</tr>
<tr>
<td>VP of Product or Business Development</td>
<td>Strategic direction for new or existing business lines</td>
<td>Product or Business expert Impacts broad business lines</td>
</tr>
<tr>
<td>Director of Product or Business Development</td>
<td>Develop new or drive existing business lines</td>
<td>Product or Business expert Impacts business lines</td>
</tr>
<tr>
<td>Fellow, Senior Fellow</td>
<td>Leader in creating new product lines or technologies</td>
<td>Top technical leader in broad industry Technical visionary</td>
</tr>
<tr>
<td>Distinguished Researcher Distinguished Engineer</td>
<td>Leader in large project (research or development)</td>
<td>Technical authority, impacts a large project or new product</td>
</tr>
<tr>
<td>Senior Researcher or Senior Engineer</td>
<td>Leader in project (research or development)</td>
<td>Project-wise expert Impacts a project or product</td>
</tr>
<tr>
<td>Researcher or Engineer</td>
<td>Team member in a project (research or development)</td>
<td>Project impact</td>
</tr>
</tbody>
</table>

**Implications:** Performance Expectations, Responsibilities, Compensation
Impact beyond products

- Many opportunities to generate “written legacy”
  - Many research roles consider it part of the job (included in evaluations, etc.)

- Patents: protect intellectual property for the institution

- Papers and Reports
  - Externalize the achievements and results
  - Give visibility to the institution and its staff

- Blogs: quick externalization of new developments, new ideas

- Open software (when applicable): collaboration across the industry

- In some cases, there might be temporary restrictions to preserve “first-mover” advantage
Career Change
Moving Between Industry and Academia

From University to Industry

• Must build real systems
• Establish visibility and knowledge in industry
• Pass technical interview process (breadth, expertise, specific technical skills)

From Industry to University

• Must continue publishing
• Establish visibility and reputation in research community
• Pass academic interview process (presentation and teaching skills, publication record, leadership)
Turn and Talk to Your Neighbor

What (if anything!) did you hear that Impacted your view of these paths?

(Is it ok your partner share it with the rest of us?)
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
Our “change” stories ...
Pamela’s career journey (so far)

- MBA, Penn State University - Erie Campus
- Bank of America
- DSc, University of Baltimore
- Research roles: Northrop Grumman / Walmart / Google / Kraken (Crypto)
- Chief Product Officer: Anita Borg
Shaun’s career journey (so far)

● PhD University of Washington 2011
  ○ Fortunate to have several internship opportunities (Intel, MSR)

● Assistant Professor, UMBC, 2011-2014

● Assistant Professor, CU Boulder, 2011-2018

● Visiting Researcher, Microsoft Research, 2016, 2019

● Associate Professor, CU Boulder, 2018-2024 (now adjunct)

● Research Scientist, Google Research, 2022-present
Summary

- Be nimble - do the research that you are excited about
  - Know how to talk about it with different audiences
- Don’t get too tied to specific jobs as part of your identity
- Relationship to research may change
- Lots of different ways to work