

Academia vs Industry: Choose Your Own Adventure

Pamela Gibbs (Anita Borg Foundation)
Shaun Kane (Google Research)



CRA-WP

Computing Research Association
Widening Participation



Link to captions

<http://bit.ly/3Q1wRV7>



CRA-WP

Computing Research Association
Widening Participation

Presenters

Pamela Gibbs, AnitaB.org



Shaun Kane, Google Research



Summary

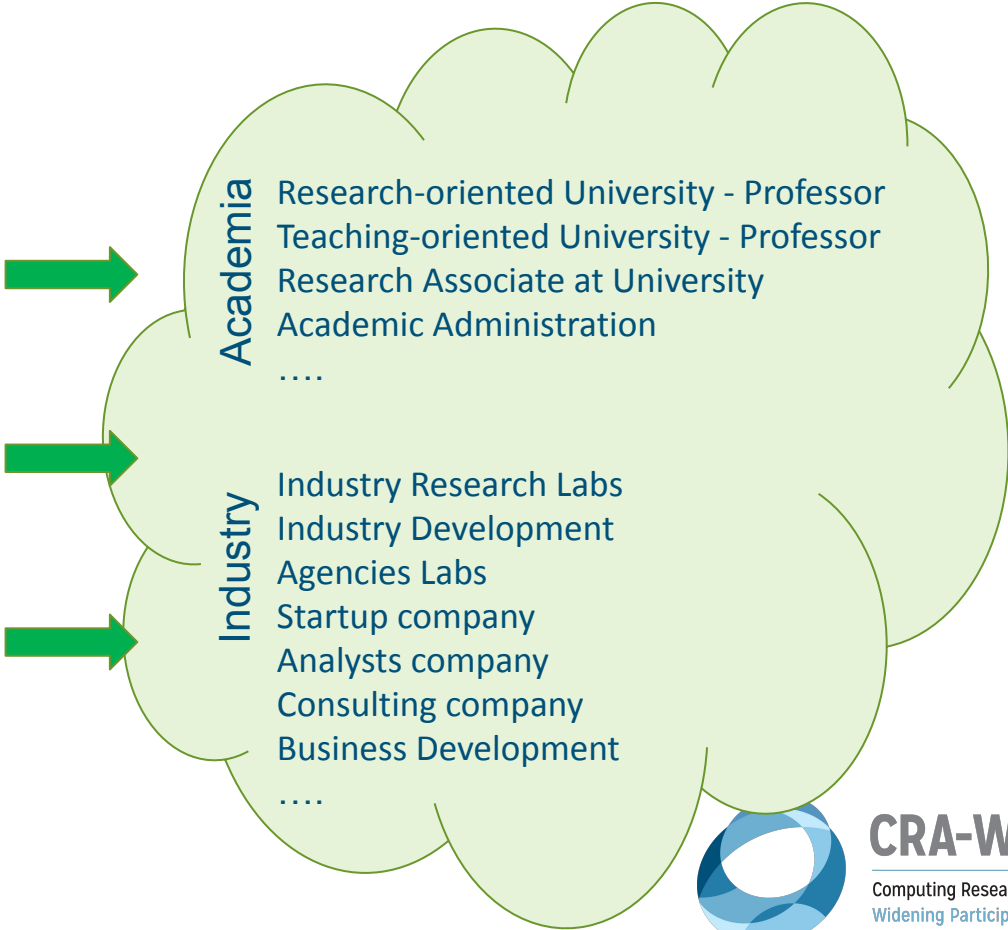
- **Many different ways to build a career**
- **Consider**
 - **What's available?**
 - **What do you enjoy doing?**
 - **What do you *not* enjoy doing?**



CRA-WP

Computing Research Association
Widening Participation

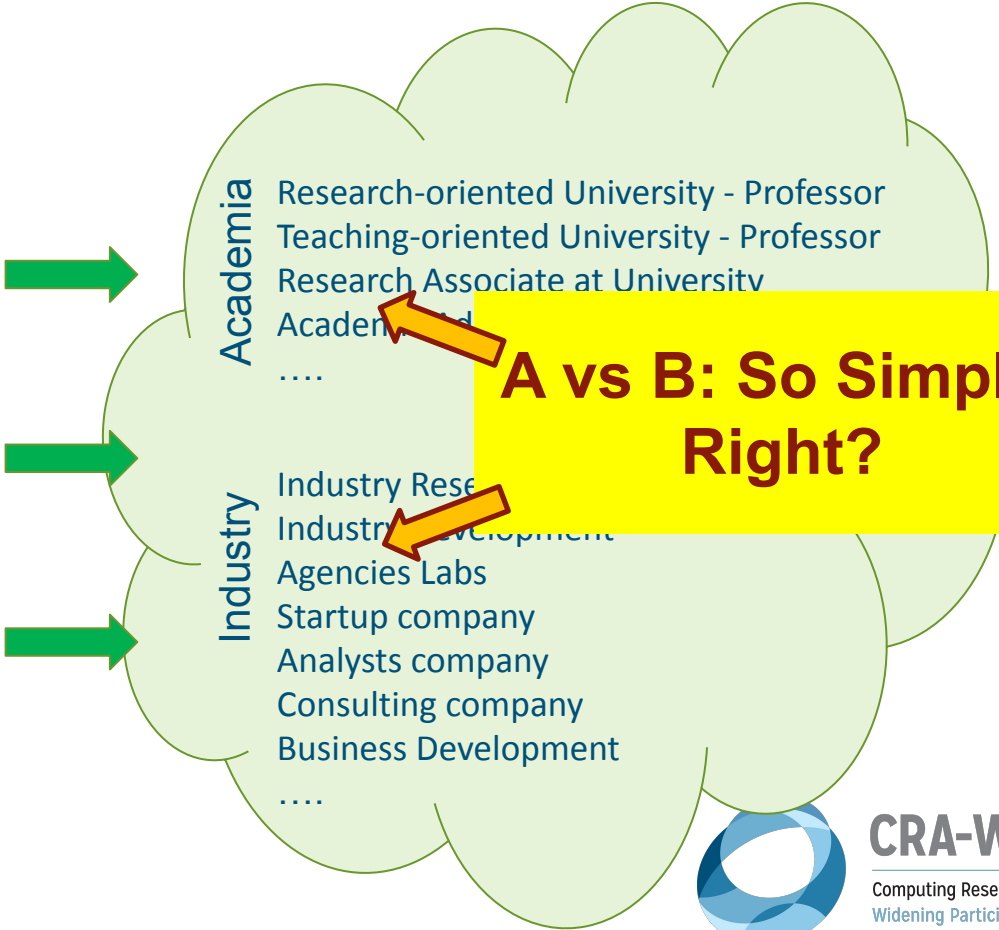
Research Roles and Career Opportunities



CRA-WP

Computing Research Association
Widening Participation

Research Roles and Career Opportunities



A vs B: So Simple, Right?



CRA-WP

Computing Research Association
Widening Participation

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?

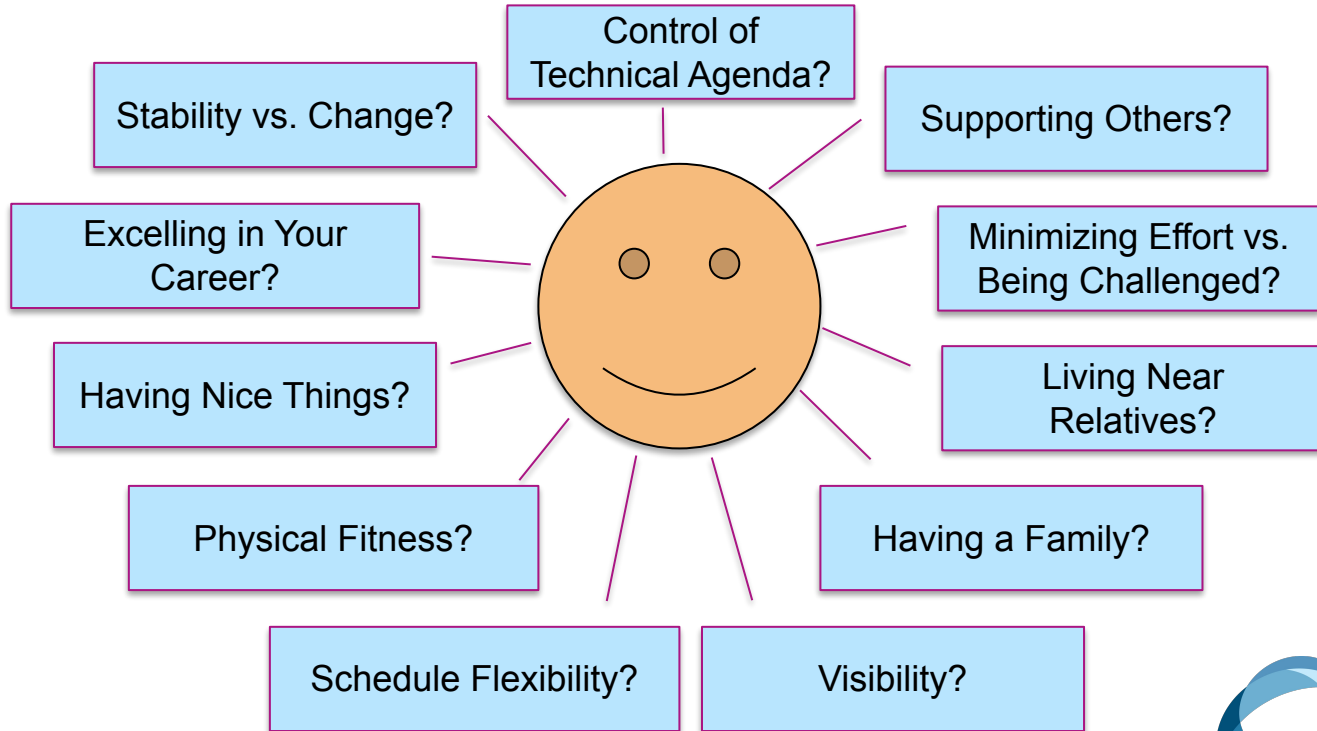


CRA-WP

Computing Research Association
Widening Participation

What is Important to You?

Must-haves vs. Nice-to-haves?



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



CRA-WP

Computing Research Association
Widening Participation

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



CRA-WP

Computing Research Association
Widening Participation

Industry Research Careers



CRA-WP

Computing Research Association
Widening Participation

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**
 - IT, Health, Pharma, Energy, Weather, Food, Transportation, Finance, Entertainment, Sports, Retail, Public Sector, Non-profit,
- **Flexibility to move across institutions and across areas**
 - Expertise acquired in one area may be very useful on another



CRA-WP

Computing Research Association
Widening Participation

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



CRA-WP

Computing Research Association
Widening Participation

Example: Industry Career Path Progression

Business ladder

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

Technical ladder



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**



CRA-WP

Computing Research Association
Widening Participation

Career Change



CRA-WP

Computing Research Association
Widening Participation

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)



CRA-WP

Computing Research Association
Widening Participation

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?)



CRA-WP

Computing Research Association
Widening Participation

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



CRA-WP

Computing Research Association
Widening Participation

Our “change” stories ...



CRA-WP

Computing Research Association
Widening Participation

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**



CRA-WP

Computing Research Association
Widening Participation

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**



CRA-WP

Computing Research Association
Widening Participation