PhD Non-Academic Career Paths & Job Search

Alan Bivens, IBM
Joel Branch, BOSS AI

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About Alan

What I do for fun:

- 2 little guys (10 and 12)
- Volleyball league
- Travel
- Collaborative board games
- Numismatist

Education:

B.S. Computer Science
University of Alabama

Ph.D. Computer Science
**Rensselaer
Polytechnic Institute**

Career:

- IBM Research - 14 years
- IBM Blockchain - 3 years
- IBM Public Cloud - 2.5 years

Current Role:

- Director Data and Platform Services, Master Inventor IBM Public Cloud

Work Activities:

- Drive external offerings
- Lead geographically dispersed teams
- Invention / Research
- Corporate Diversity Initiatives

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About Joel

What I do for fun:

- Make people laugh
- Cook (BQQ, baking)
- Arts (photography, design)
- Travel/adventure
- Gaming

Education:

- B.S., Computer Science, Howard U.
- Ph.D., Computer Science, RPI

Career:

- IBM Research
- ESPN Innovation Lab
- BOSS AI (enterprise AI startup)

Current Role:

- Chief Product Officer
- Borough Councilmember, Metuchen NJ

More detail:

- I've benefitted from working in different types of tech orgs; large enterprise, entertainment-oriented, startup

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What Non-Academic Careers Exist for PhDs?

- First of all: you are not a failure as a PhD if you don't get (or don't even want) an academic job! Far from it!

- There are plenty of great non-academic career paths where PhDs can be successful:

  – Industrial labs

  – Government labs

  – Product development

  – Startups / Entrepreneurship

  – Outside the tech industry: finance, health, public sector, non-profits

- Even flexibility to move back and forth

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What Is Industrial Research All About?

- Can get the best of industry resources and academic research both at the same time!

- Industrial research jobs lie on a spectrum

  - Sometimes look one year ahead of product development, sometimes many years ahead!

  - Fundamental research, or applied

- Many ways to innovate!

  - Writing papers

  - Filing patents

  - Product development

  - Collaboration with other companies, academia, etc.

  - Societal impact

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A Few Words on Publishing

- There are many opportunities to publish when in non-academic PhD jobs
  - Many industry research roles will consider it part of your job (included in your evaluations, etc.)
  - Many summer intern projects result in publications
  - Academic and government lab collaborations will frequently result in publications
- Some jobs may not emphasize publishing
  - May instead focus on protecting "secret sauce" or impressive demos

- There are likely processes to follow
  - Protect the intellectual property in the paper by first filing a patent
  - Focus areas and focus venues
  - In some cases, super sensitive areas will have temporary restrictions to preserve first-mover advantage.

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Finding a Non-Academic Job as a PhD

- Build your professional network (conferences, workshops, visiting speakers at your school, etc.)

- Establish a good online presence

- Pay attention to industry focus areas

- Create a concise c.v. and a professional website

- Consider **your** preferences to help guide your search.

  - Recall there are many different jobs. What kind would help you reach your career and personal goals?

  - Also realize it is possible to change jobs over time. You are not making a decision for life.

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Internships

- Recommended for multiple reasons.

- Many internships lead to offers for permanent jobs.

- Teach a lot about specific positions at specific employers, also about more general job types, employer types, and industries. Help refine your preferences and goals.

- Provide opportunities for longer-term career networking.

- When doing one, try to reach out beyond your immediate project and mentor, both to learn and to network.

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Interviews

- Don't underestimate them, but don't be scared either
- Widely different kinds (e.g., research vs. development)
- Ask about format in advance (e.g., talk vs. no talk, mix of coding vs. design questions, whiteboard vs. computer)
- Find sample questions online and/or in books (*Cracking the Coding Interview* is a good one!)
- Practice answering questions in expected format
- Ask for clarification if question is vague
- Talk through your thinking while arriving at a solution
- Ask questions to help figure out if you want to work there

Offers & Negotiations

- Congratulations! Don't be afraid to negotiate. It's an important part of the process. A few hours of discomfort can make an enormous difference.

- This is your chance to set terms

- Try not to give the opening bid

- It's good to have competing offers

- Negotiate $$$ if you have a concrete alternative, or can demonstrate why they need to meet your number

- Take time to understand offer / bonuses

- Negotiate on perks if they cannot match $$$

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Having a Successful Non-Academic Career

- Think of yourself as your own mini-startup

    - Do good work, market yourself, avoid bad press

- Find your work-life balance

- Success in academia is about papers and grants

- Success in industry is about making the company $$$

    - …but what that actually means differs for each job

    - …and that still leaves plenty of room for personal and professional growth along the way

- Every job is different; study the success of others and seek out mentors to help you adjust to your particular situation

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Questions for Discussion

(shamelessly borrowed from previous presenters)

- Do internships matter?
- How do I showcase my technical skills?
- Can I publish papers? Contribute to open source projects? Work with students?
- How do I find and get on projects?
- How are projects started?
- What is the interview process like?
- How important is teamwork versus individual work?
- How are my work goals set?
- What is the career path of a researcher in your organization?
- Is it possible to switch during your career: Industry/Academia/National Laboratory/Funding Agency/Non-Profit?