

# PhD Non-Academic Careers and Job Search

*Sujata Banerjee*

*A.J. Brush*

*Jamika Burge*

With thanks to prior speakers  
Amanda Stent, Rita H. Wouhaybi



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# Who are the folks in our neighborhood?

How many of you are:

- Undergraduates
- MSc students
- PhD students
- Others ?

# Your Panelist – A.J. Bernheim Brush



## Education

- Ph.D, University of Washington 2002, Williams College B.A. 1996

## Career

- Microsoft,
  - Microsoft Research for 12 years,
  - 2 years in Cortana product
- Year of leave working in Industry as programmer for personal reasons
- Research Areas: HCI, Tech for the Home (Speech Interaction, Ubicomp, IoT)

## Family and Fun:

- Kids: Colin(16) and Ryan (13).
- Hobbies: Exercise, Reading, Travel



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# Where A.J. works

## Microsoft Research

- Established in 1991
- More than 850 researchers
- 55 areas of research

MSR is a small part of Microsoft  
( $< 1\%$  of employees)

## Cortana

- Microsoft's digital assistant
- More people than all of research
- Immediate impact
- Shipping my research



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# A.J.'s advice

- There is a job that fits you. It can take time to find it and the process will likely be stressful
- If you don't like your options look for something that doesn't close doors (A.J. example -> Postdoc during recessions and due to 2 body problem)
- Knowing what you want is really important (and really hard, at least for me 😊). E.g. work environment, intellectual freedom, funding
- Change is always possible, keep learning



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# About Jamika...

jamikaburge.com | @jdburge



## **PhD, Virginia Polytechnic Institute, 2007**

- CS: human-centered design, computer-mediated communication

## ***Capital One***

- A Tech Company that happens to be a Bank...
- Head, Communities of Practice (for Designers)

## ***Founder and Principal, Tech Consulting Start-up***

- Worked with Google, NCWIT, and Association of American Colleges & Universities (AAC&U)

## ***Co-Founder, blackcomputeHER.org***

## ***Past: DARPA consultant, Penn State (Postdoc), IBM Research (PhD Research Fellow)***

*For fun: laughing, traveling, family & friends*



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# Where Jamika Works

## Capital One (COF)

- Established in 1994
- HQ in McLean, VA
- Acquired Adaptive Path in 2014

## One Design

- Team of 450+ designers
- Collaborate with Product, Tech Divisions
- Products: Mobile Wallet, CreditWise, Eno



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# Jamika's advice

- Take some time to think about your personal and professional philosophies. Allow that to be an important part of your decision-making.
- It's OK to explore new opportunities. Having several good career opportunities – especially in tech – is the #newnormal.
- No one can do what you can do, the way you do it. Never feel that you cannot move to a new opportunity if you don't feel like a valued contributor.
- Be open to trying something new, especially if it challenges you.



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# About me: Sujata Banerjee



Currently at VMware Research

Research co-Director, External Research and Emerging Technologies  
Senior Staff Researcher

Previous Career

**Hewlett-Packard Labs**

Distinguished Technologist and Director, Networking Systems Research Group

**University of Pittsburgh**

Associate Professor with tenure, Telecommunications Program

Research

Networking: Software Defined Networking (SDN), Network Functions  
Virtualization (NFV), Energy Efficient Networking, Measurement

Education

Ph.D., Electrical Engineering-Systems, University of Southern California  
(USC) B.Tech. and M.Tech.: Indian Institute of Technology (IIT), Bombay



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# Where Sujata works: VMware

Founded in 1998 - 20 years old  
Commercialized x86 virtualization  
39<sup>th</sup> on Fortune's Best 100 Places to work in 2017

## VMware Products and Solutions Areas

- Software Defined Datacenter
  - Hybrid cloud
  - Server, network, storage virtualization & management
  - Security
- Desktop virtualization
- Telco/NFV
- Mobility management, Edge/IoT

## VMware Research

Focus on technology disruptions  
Both internal research and external research partnerships  
Example areas: blockchain, programmable data plane,  
distributed consistency, reprogrammable  
hardware, remote memory, big data



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# Advice from Sujata

## Need hard and soft skills

- Learn about the research process: identify important research problems, problem formulation, build solution artifacts, publish
- Learn to network: Go to conferences, meet-ups, present your work well
- Learn to “sell” your ideas

## Need Depth and Breadth

- Inter-disciplinary work often has big returns : learn about other areas while becoming an expert in your area
- Team work is important to achieve big results : learn how to leverage your team members and be a team player
- Learn about the company you intern at: leadership, products, services, growth areas, customers, market segments, competitors

## Evaluate what you really enjoy doing to define your role

- Design vs implementation; Tangible vs open ended problems
- Your non-technical skills and interests are also important

## Technology will advance and change

- Watch for trends
- Be ready to learn and “re-invent” yourself

# Pragmatics

# What is a YOUR Dream Job?

Figure out:

- Where to live?
- What kind of work?
- What direction and how much to grow?

Get an internship for 2-3 summers

- Sometimes 'hired' before graduation

Industry jobs come in many flavors

- Research
- Engineering
- Development
- Design
- Start-up



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# Applying for Jobs

Less regulated schedule than academia

Your network will matter.

Be known and learning

- Volunteer at local events and conferences
- Go to talks by people from industry (and academia) visiting your school. Meet with them.
- Give polished presentations at conferences
- Target networking opportunities at conferences
- Stay in touch with school alumni

Attend bigger events: GHC, career fairs, CRA-W

Apply to positions on employers website



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# Phone Interview

It's a pre-screen

Do your homework

- Look-up the person who contacted you for screen
- Lookup the group/team
- Read the open position (open req) closely for details that you might have missed

Mock/practice phone interviews



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# On-Site Interview

## Logistics

- Give yourself plenty of time to get there, fly the night/day before
- Show up on time (or early)
- Dress professionally
- Be confident but not arrogant

## Make sure you understand format

- Talk? Whiteboard interviews? Meetings?
- Ask for the list of people ahead of time, research them.
- Ask for breaks if you need them, take a breath in restroom
- Lunch/dinner are interviews, stay professional



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# Interview (2)

If there is a talk (same as academic)

- Rehearse, rehearse, rehearse
- Have polished slides: call out important points, use visual material, dig deep technically
- Be polite when answering questions but don't let them de-rail you
- Don't be offended if they didn't have time to read cv/papers closely or attend talk.
- Ask questions: your chance to figure out if you want to work there.
- Is this a place you can see yourself?



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# Things to consider

There is a ton of variability in industry jobs  
Sometimes people don't understand the value of the Ph.D.

If you are trying to get an engineering job  
make sure your coding skills are visible in CV and up-to-date

You have learned to deal with ambiguity and find solutions. This is valuable.



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# Offers

Congratulations

Negotiate whatever you care about.

- Start date
- Salary (even if outside your comfort zone)
- Signing bonus
- Moving package
- Campus and flexibility
- Presenting work at conferences

*If anyone asks you about how much  
you are looking to be paid  
“Happy to consider your best offer”*



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# Backup Questions

- 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?



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**Thank you!**



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# Industry to Academia

Academia	Industry (other than Research)	National Lab or Industrial Research
Active publishing in top tier conferences	Must build “real” systems	Mix of building “real” systems and publishing
Active collaborations with academia	Up-to-date technical skills	Active collaborations with labs and academia
Establish visibility in research community	Understand business roadmaps	Address agency or company mission critical problems
“Soft” money	“Hard” money	“Soft” and “hard” money



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