Growing Research/Surviving First 2 Years

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I predict what will go wrong between people and technology, and figure out how to avoid it

B.A. in Mathematics from U.C. Berkeley 1984

Engineer at RTI (later Ingres) 1984-85

Engineer at SDA (later Cadence) 1985-86

Masters in Computer Science from U.C. Berkeley 1988

Ph.D. in Computer Science from U.C. Berkeley 1994

Post-doc at the University of Bologna 1994

Assistant professor in CS and EE at Stanford University 1994-2003

Senior Research Engineer at HP Labs, Palo Alto 2003-now

How I spend my time (now)

Research on improving sensor privacy for connected devices

Research in exploring new experiences around 3D Print

Editorial boards

Writing columns / articles

Patents

Thesis committees

Review committees

Mentoring

Consulting

We are evaluated on

Research impact

Product impact

Community impact

But this changes over time

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I build tools to manage data and processing on large supercomputers

Bachelor in Computer Engineering, India 2000

Masters in Computer Science, Indiana University 200?

Research Software Engineer, MCNC and RENCI 2002- ?

PhD in Computer Science, Indiana University   2009

Alvarez Postdoctoral Fellow 2009 2011

Scientist 2011 – 2014

Group Lead 2014 - 2016

Staff Scientist 2016 – Present
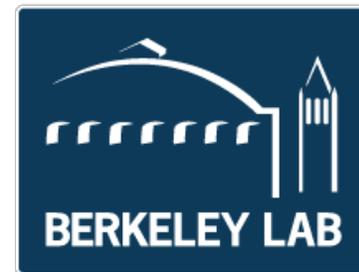
How I spend my time (now)

Managing projects: Lead teams of HCI specialists/social scientists, software engineers, researchers, postdocs and students

- proposal writing, technical lead, publications,

- supervising students/postdocs/staff

- hiring

- establishing collaborations

We are evaluated on
Grant $$
Papers
Impact on Science
..

Strategy and future planning at various levels

Chairing and participating in PCs, editing journals, etc,

Program and Proposal review committees

Mentoring

Life at Labs

Industry Labs

Wide range of opportunities

- HP Inc, PARC, Microsoft, IBM, AT&T, Nokia, Motorola, Google, Amazon, Intel …

Dimensions where they may differ

- Research flexibility: Do you choose your own projects or get direction from product groups?
- Funding models (e.g. separate division, sponsored by product teams)
- Participation in research community (e.g. publishing)
- Team/Research group structure

Government Labs

Collaborative environment (cross domain)

Possible to work on a wide array of subjects

Basic or applied research – mission driven

Soft money, block grants, budgeted funds

Flexibility: can often set your own hours (and pace)

Managed environment

   May be harder to develop your own research program vs. working on an existing/approved programs

Taxpayer money: limit on perks!

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Applied Research

Team projects

- Junior researchers are often members of a team
- Team will most likely have some goals/deliverables that are not exclusively research
- The research will frequently be a team effort

Setting the research agenda

- Usually requires some time at the lab
- Must be relevant to the lab's strategic mission

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Pros/Risks

Pros
- Funding "taken" care of (to some extent)
- Typically well-resourced (travel, etc.)
- Ability to have direct impact on products/people
- Relatively easy to adjust research direction/try new areas

Risks:
- Labs can change (e.g. Intel Research labs closed spring 2011)
- Companies are sensitive to economic climate

Activity

Form groups of four and consider the questions:

1) 5 years from now, what would you like others to know about you and your work?

- Inside your organization
- Outside your organization

2) What do you have to do to achieve those goals?

3) Is there anything blocking you from doing those things now?

Write your answers down   ~ 7 mins

Discuss and compare your answers with your group ~8 mins

Steps to Success

Build your T

Be interested in a variety of topics
and thicken the depth
 (Important to build collaborative
teams long term)
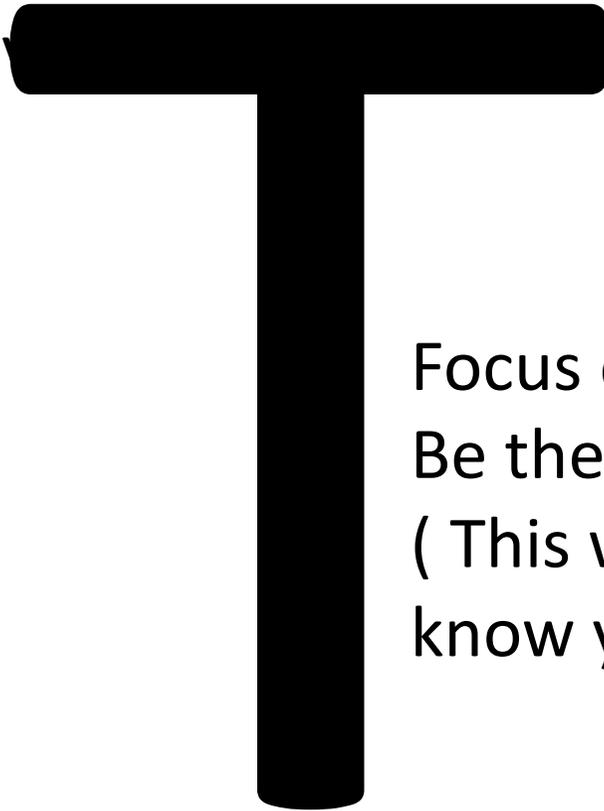
Focus of first two years:
Be the expert in your area
(This will be what people will
know you for)

Do quality work!!! There is no shortcut to that!

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Starting Out: Mentors

Find mentors

- You may or may not have a formal mentor

- Different mentors for different activities (research, program activities, lab politics, etc.) or for a specific situation

- Include someone outside your reporting chain! "1/2 hour of your time"

- Ask for advice, tips, introductions, stories

Participate in the research community

- Attend talks and read papers

- Go to conferences, give talks, publish papers, invent things and file patents

Starting Out: Visibility

Working in many different areas can have benefits

- But do not become so fragmented you can't do your best on each task.

- Establish a reputation at your lab for good work. Be visible (for the results)

Establish your expertise and find your community

Find what conferences you want to publish in

Community service (program committees, reviewing) are not rewarded as much

- But they are important for your growth as researcher

- Be selective

Starting Out: Publish/Present/Impact

The research community values publications

- Means of vetting and spreading ideas

Publishing can be important at research labs but it may not be the only criteria

- Understand what is valued in your organization

Career mobility is relatively limited if publications stop (in some cases)

- This depends on what your career path might be at the lab

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Getting Known Inside the Lab

Produce great work and make it known

- Write papers/technical reports
- Give talks within the lab
- If your lab has an education or outreach office, get to know them

Your manager(s) should be praising you to others

- Make it easy for them by providing updates, slides, demos

Share appropriate credit with your collaborators. Seek collaborators

Start reading groups and invite colleagues – you may find future collaborators

External recognition may come before internal recognition

- Make sure management hears about it!

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Getting Known Outside the Lab

Write workshop papers and posters, in addition to conference and journal articles

Consider doing talk tours after major results

- Self-invitation ("I'll be in the area")

Proposal review panels, journal refereeing, conference program committees

- Volunteer yourself (but in moderation)

Invite others to visit and give talks

Lessons from our Experience

Things I'm glad I did

Worked in many very different areas, changing every few years

Collaborated with many different people, internally and externally

Contributed to lab environment and culture

Mentored junior employees

Published externally

Participated in review committees, thesis committees, and external scientific events

Maintained a sense of humor

Things I wish I had done

Better project planning

Learned to say no (and without guilt!)

Avoided time wasters

Better balance between fun and duty

Celebrated negative results (for my own work)

Communicated better about the value of what I do

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Things I wish I had realized earlier

There is no work / life balance (at least not for me)

No plan is without its glitches

The imposter syndrome never goes away
You have to prove yourself again every time something changes

It's good to get second opinions, and good to do so sooner rather than later – socialize your work!

But it's also wise to trust your instincts and learn to communicate them to others

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Things I am glad I did

Worked on multiple projects that connected me to different organizations at the lab

Took lots of time to write (papers, proposals) and actively sought lots of feedback from different people

Filled gaps - I took on things that other people didn't have time to do

Formed a very strong peer group at the lab and outside

Lots of introspection ... helped to understand the failures and how to do better

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Things I wish I had done

[I am typically a "No Regrets" person …]

Carved out more time to learn new things!

Kept track of a "Failed CV".

Let it go (some times earlier than I did)!

Taken more time off (I fixed this a few years ago).

Openly talked about personal situations.

Things I wish I had realized earlier

People operate at different time scales - there are almost no real emergencies at work.

All situations always work out even if they are painful in the interim.

Understand where "best" wasn't always necessary and "good enough" was just fine.

I am not cut out for traditional "networking" and that is okay.

My own abilities to handle difficult technical/management situations.

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